

	Results
1.	Interactive Intelligence Releases New Version of E-mail and Web Auto Response Software Business Wire, February 5, 2002, Tuesday, 812 words
2.	SWAT to the rescue: Duke University assembles a crack squad to tame an onslaught of PC-packing students Network World, January 5, 1998, FEATURES; Star Power; Pg. 85, 2529 words, Paul Desmond
3.	MobileWare Software Moves to the 'Net InternetWeek, April 8, 1996, 366 words, Jeffrey Schwartz
4.	Expert systems and the implementation of quality customer service Industrial Management + Data Systems, 1997, Vol. 97, No. 2; Pg. 63; ISSN: 02635577; CODEN: IMDSD8, 4220 words, Eppinette, Matt; Inman, R. Anthony
5.	Diebold Obtains ATM Monitoring Contract for Largest Deployer of Casino ATMs PR Newswire, FINANCIAL NEWS, 526 words
6.	WIRE ME THE BILL Utility Week, May 18, 2001, FEATURES; Pg. 26 26, 1543 words, Karma WaddingtonBILLS-MASONS
7.	Software adds a human touch--and voice Informationweek, April 9, 2001, Pg. 34; ISSN: 87506874; CODEN: INFWE4, 403 words, Colkin, Eileen
8.	eStara Launches OneClick eMail Links(SM) Service: High-Quality Web Voice Technology is Now Available For eMail-Based Marketing and Customer Support PR Newswire, FINANCIAL NEWS, 642 words
9.	Audio, Video, Online Forms Among New U.S. WEST Dex Web Site Service Custom Enhancements for Small Businesses: New Offerings Meet Needs of Growing Number of Small Businesses Seeking a More Advanced Internet Presence PR Newswire, May 24, 1999, Monday, Financial News, 714 words
10.	Software adds a human touch--and voice Informationweek, April 9, 2001, Pg. 34; ISSN: 87506874; CODEN: INFWE4, 403 words, Colkin, Eileen
11.	Seeing the Sites Inc., October, 1997, SPECIAL ISSUE; INC. 500; The Web; Pg. 134, 2866 words, BY LEIGH BUCHANAN
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13. IM Apps Branch Out InternetWeek, February 21, 2000, E-Business Applications, Pg. 15, In Brief, 489 words, David Drucker

14. E-mail Update: Trends and tips for beginning mailers Direct.com, July 2000, special focus; ISSN: 1046-4174 , 1173 words, MICHELLE FEIT

[Return to List](#)

FOCUS - 1 of 14 DOCUMENTS

Business Wire

February 5, 2002, Tuesday

Interactive Intelligence Releases New Version of E-mail and Web Auto Response Software

LENGTH: 812 words

DATELINE: INDIANAPOLIS, Feb. 5, 2002

BODY: e-FAQ 2.2 offers new workflow feature and other enhancements for increased agent productivity, improved customer satisfaction and reduced operating costs

Interactive Intelligence (Nasdaq:ININ), a global developer of interaction management software, released e-FAQ(TM) 2.2, the company's latest version of its award-winning e-mail and Web auto response product on Jan. 25.

e-FAQ 2.2 offers a new workflow feature and other enhancements for increased agent productivity, improved customer satisfaction and reduced operating costs. e-FAQ 2.2 is targeted at organizations of all sizes that process at least 50 e-mail or Web-based requests daily.

In addition to improved reporting, query testing, response accuracy, routing and complete support of the Netscape 6.1 browser, e-FAQ 2.2 offers a new workflow feature designed to further simplify the administration process. This new workflow feature enables administrators to define formal rules about how requests for new FAQ entries or modifications are processed from submission to approval. Administrators can also perform authoring, verification and approval from a single interface, thus eliminating the need for informal "out-of-band" mechanisms, such as sending e-mails to authors or administrators.

For organizations that want to migrate to more sophisticated interaction management applications, e-FAQ 2.2 also offers compatibility with the latest release of Interactive Intelligence's Customer Interaction Center(TM) (CIC), version 2.1. CIC is Interactive Intelligence's contact center offering designed to replace proprietary devices such as PBXs, automatic call distributors, interactive voice response systems and fax servers.

Unlike many knowledge management products that require customers to answer multiple pre-qualifying questions before getting an automated response, e-FAQ uses linguistic analysis and artificial intelligence techniques so customers can get the answers they need with a single inquiry. e-FAQ's Web-based authoring interface, called the e-FAQ Knowledge Manager, enables employees to build a knowledge base by simply submitting frequently asked question and answer pairs instead of requiring a dedicated knowledge engineer to perform this task.

"Self-service is a big issue these days as customers increasingly expect 24x7 service and the convenience of interacting with companies via any communications channel," Dr. Donald E. Brown, president and chief executive officer for Interactive Intelligence, said. "e-FAQ, with its simplified authoring tool, escalation to live help, and a migration path to more sophisticated interaction management applications, gives organizations the ability to more effectively meet the needs of customers without exhausting IT resources. The enhancements in e-FAQ 2.2 extend these benefits and we're excited to offer companies an even better product for the purpose of reducing costs and increasing customer loyalty -- a critical goal in

today's 'commoditized' business environment."

Interactive Intelligence first released its interaction management software in 1997 and launched e-FAQ in 1999. Today, more than 900 contact centers, enterprises and service providers use software by Interactive Intelligence.

About Interactive Intelligence Inc. Interactive Intelligence (Nasdaq:ININ) is a global developer of interaction management software designed to automate communications for contact centers, enterprises, e-businesses and service providers. The company was founded in 1994 and, today, has a worldwide ~~customer~~ base of more than 900 companies. Based on an open, unified platform, the Interactive Intelligence product line was designed as a flexible and affordable alternative to traditional telecom solutions. The Interactive Intelligence product line is subject to multiple United States and international patents pending. Interactive Intelligence has won numerous awards, including Software Magazine's Top 500 Global Software and Services companies in 2000. The company's global headquarters are located in Indianapolis, IN, with regional offices throughout North America, Europe and Asia Pacific. Its telephone number is +1 317.872.3000; on the Web: <http://www.ININ.com>.

This release contains certain forward-looking statements that involve a number of risks and uncertainties. Factors that could cause actual results to differ materially are described in the company's SEC filings.

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[Return to List](#)

FOCUS - 2 of 14 DOCUMENTS

Network World

January 5, 1998

SWAT to the rescue; Duke University assembles a crack squad to tame an onslaught of PC-packing students

BYLINE: Paul Desmond

SECTION: FEATURES; Star Power; Pg. 85

LENGTH: 2529 words

Kristin Schroeder showed up at Duke University last Aug. 27 to begin her freshman year. She was excited as well as harried those first few days. There was a dorm room to get organized and a steady stream of mandatory and semimandatory meetings to attend. The university president gave a speech, as did author and poet Maya Angelou. There were briefings about various courses along with freshman orientation games and some organized, late-night Carolina-bashing (strictly verbal).

One thing, at least, went like clockwork: getting her computer hooked up to DukeNet, the campus network. "I didn't know how to do it, so I called the SWAT team," Schroeder says. The SWAT team (Students with Access to Technology) arrived when it said it would and quickly got Schroeder online.

"They connected it all up in about 15 minutes," she says. Just like that, she had access to university resources including library card catalogues, the Internet, games, music and the Automated Course Enrollment System (ACES), an online program that enables students to switch courses. "I spent about a week doing that. I had horrible classes," she says.

Schroeder is one of more than 6,000 students who arrived at Duke this fall with little inkling of the planning and testing that went into getting them connected in a hurry. It was a process two years in the making, started in 1995, adjusted in 1996 and further refined in 1997, when the consensus was the university really got it right.

SWAT '97 was a success financially and, more important, in terms of ~~customer~~ service. Three-quarters of the students, including all freshmen, were connected to the network before school started. The rest were connected within the first week of classes. In 1996, it was the third or fourth week of school before all the students got online says Ginny Cake, director of the Office of Information Technology's (OIT) ~~Customer~~ Support group.

And whereas the OIT spent more than \$ 70,000 on SWAT '96, the figure dropped to \$ 34,293 for SWAT '97. Most of the savings came from using inexpensive student

labor during summer months to prepare for the fall onslaught.

But this is more than just a tale about getting kids connected to the school network. It's really a network management story, one that proves you can reduce costs and simplify administration with the proper mix of technology, planning and coordination - all without a thin client in sight.

Duke was named a cowinner in the 1997 Network World User Excellence Award competition on the strength of SWAT, but it's clear SWAT is only the tip of the iceberg when it comes to getting a handle on management at Duke. Consider that the DukeNet FDDI backbone consists of five Cisco Systems, Inc. routers and three Cabletron Systems, Inc. chassis-based hubs, which in turn support production or test networks employing virtually every network technology there is - from simple 56K and T-1 links to remote locations to Asymmetric Digital Sub-scriber Line test beds, ATM networks and OC-48 links to the Internet 2 test network. In all, the backbone supports approximately 18,000 machines; another 12,000 on a separate medical center network rely on DukeNet for Internet access.

Now consider that the whole lot, down to the faceplates installed in more than 200 buildings, is managed by a staff of 10 in the Duke Office of Information Technology Data Communications department.

Bob Currier, director of Data Communications, credits the management tools the group has installed and customized over the years. They include Cabletron's Spectrum management system, Remedy Corp.'s Action Request System trouble-ticket program, Ganymede Software, Inc.'s Chariot for capacity planning and Hewlett-Packard Co.'s NetMatrix probes.

Currier makes it clear his group doesn't manage servers or desktop machines; its responsibility stops at the faceplate that such equipment plugs into. But given there are hundreds of outlets in each of those 200+ buildings, that's still a tall order. "We've got a tremendous amount of hardware scattered all across campus," Currier says. "It's a fairly small group for what we do."

He has some help, of course. Currier's group works closely with the OIT's Customer Service organization, which has responsibility for the help desk. Duke has made significant advances in terms of Web-enabling its help desk, which goes a long way toward letting users help themselves.

In September, traditionally the toughest month because of the influx of students, the help desk handled 90% of all calls without having to escalate the problem to the Data Communications group or elsewhere. That's up from 50% in September 1995 and 64% in September 1996, says Philip Verghis, manager of customer services for the Customer Support department.

He credits the World Wide Web for helping to make the improvement possible. Analyzing the number of contacts to the help desk during September in each of the past three years shows Verghis is right. The number of direct contacts via means such as phone calls and e-mail jumped dramatically, from 8,800 in September 1995 to 17,500 in 1996. Verghis says this kind of hike is to be expected. As organizations get better at offering help desk services, word spreads and the number of contacts quickly rises.

"But as you start doing a better job at self-help, the contacts at the help desk should stay about the same while the overall contacts, through the Web and other self-help initiatives, will explode," he says.

As the graphic at right shows, that's exactly what happened in 1997. The numbers make for convincing evidence that an awful lot of students, faculty and staff were finding the help they needed on the Web.

This kind of thinking, helping customers help themselves, comes straight from the top. "Sometimes we don't give our customers enough credit," says Betty Le Compagnon, chief information officer and vice provost for Information Technology at Duke. "If you get the tools out there, people will figure out how to use them."

SWAT '96 - The early days

Students certainly figured out how to use the tools provided by the SWAT team, although the team made it all pretty simple.

Planning started a full year before. "We realized in the middle of SWAT '96, when we started wrapping things up at 2:30 in the morning, that we needed to reconsider the way we handled things," Currier says.

Data Communications had installed Ethernet jacks in each of the dorm rooms and set up a Dynamic

SWAT to the rescue; Duke University assembles a crack squad to tame an onslaught of PC-packing students
Network World January 5, 1998

Host Configuration Protocol (DHCP) server to assign TCP/IP addresses. But the server, which was based on beta code, "crashed every couple of hours," he says.

The SWAT team, which consisted of personnel on loan from virtually every one of 10 divisions within the OIT, plus a handful of students, did its best to keep up. But it was a time-consuming affair, given that SWAT had to troubleshoot network connections with rather kludgy tools, help students install Ethernet cards - an interesting chore considering many of the PCs were intended for home use - and assist in configuring systems for TCP/IP connectivity. Plug and play was not always plug and play, as Currier put it.

Oh, and there was one other thing. "We had Hurricane Fran come rolling through campus," he says. "That set us back a couple of weeks."

SWAT '97 - Getting it right

In the spring of 1997, the effort to do better began in earnest. Two students, sophomore Kevin Cheung and senior Bill Chen, were intimately involved in the process. "They did 90% of the work," Verghis says.

It started with infrastructure. In 1994, when there were only a few hundred users connected to the residential network, a single flat Ethernet sufficed. In 1995, that was broken into four segments, each attached to a Cisco 7000 router, which provided the connection to the DukeNet FDDI backbone. In 1996, each of the four Ethernets were outfitted with switched Ethernet links to the FDDI backbone.

By 1997, the Cabletron hubs supporting that structure were showing their age. So the university embarked on a project to upgrade the hubs with Cabletron 2200 switches, supplying switched Ethernet links to every port in every dorm room. Last summer, Data Communications got halfway there, upgrading some 3,000 ports, including all those in freshman dorms. "As long as the budget gods smile upon us, we'll finish this summer," Currier says.

Throughout the summer, the SWAT team tested the outlets to avoid the problems with bad jacks it faced in 1996. Using relatively inexpensive student labor, every outlet in every room was tested using a Fluke Corp. OneTouch 10/100 Network Assistant analyzer, a simple-to-use but powerful and time-saving device. Previously, SWAT team members had to boot up a laptop and ping a server to test a network connection.

"It takes time to boot that laptop," says Michael Dodd, assistant director of the Data Communications group. "This [Fluke device] is streamlined. Just power it on and it's ready to go."

Now should there be a problem, the team could be reasonably sure it wasn't on the network side. The other side of the equation, then, was making sure the students were prepared.

That task fell largely to Cake's Customer Support team.

In June, the group mailed a letter to each student detailing the exact kind of hardware they should bring, complete with configuration information - including the network interface card. The letter made it clear only three operating systems would be fully supported: Windows 95, Windows NT and Macintosh OS 7.5 or higher. The letter included an order form for those who wanted to buy their equipment from the university's computer store.

The letter was effective. Only 8% of students brought a machine with an operating system other than those that were fully supported. The bulk of the stragglers, 7% of them, had Windows 3.1, for which the OIT was prepared.

Customer Support also created a CD-ROM, dubbed "Duke's Internet Survival Kit," which had all the application software students needed, including a file transfer utility, Adobe Systems, Inc.'s Adobe Acrobat document viewer, Netscape Communications Corp.'s Navigator, a virus protection tool and Simeon e-mail software. A booklet, "Duke's Internet Survival Guide," was prepared to complement the CD, providing instructions on how to use the software.

Each of these were handed out when students signed up for telephone and cable TV service, eliminating a trip to the help desk site, as had been the case in prior years.

Finally, the help desk group created Web pages to walk students through any configuration questions. Returning students who hadn't changed their configuration settings from the prior year would be all set, but others might need help getting their machines set for DHCP. The Web pages explained exactly what to do, and even provided diagrams of the Ethernet faceplate.

Returning students were strongly encouraged to take advantage of such tools before calling on the SWAT team for help. "We did not go on site until they had tried [it] themselves," Cake says.

Data Communications also built a Web page for monitoring the DHCP server, which is based on a pair of redundant Silicon Graphics, Inc. machines running Internet Software Consortium code. Technicians in the field could point their browsers at the page to see whether the server was up, a big help in troubleshooting. And a script was written to start the server every couple of minutes to ensure it wouldn't go down and stay down, as it had the year before. Reaping rewards

The strategy paid off. "It hasn't crashed in months," Currier says, even though the server has parceled out more than 4,100 TCP/IP addresses since August.

There also was improved communication between the Data Communications and help desk groups regarding problems that did crop up. In past years, Data Communications was informed of problems in any number of ways, from voice messages to students dropping in.

This year, students received explicit instructions to call the help desk if they had a problem. "If it doesn't come in via trouble ticket, it doesn't exist," Currier says. That helped keep things highly organized, and Data Communications was able to close most trouble tickets within 24 hours.

That kind of customer service has made the OIT a big hit with the students. Network World stopped four unsuspecting students at random, asking each for their opinion of the computer setup process. SWAT was four for four; each student said they got their computers connected to DukeNet in just a few minutes, some with SWAT's help, some on their own.

Freshman Ross Montante's response was typical. "They gave us the book and the CD, and most of it was completely self-explanatory," he says. "The whole setup was a breeze. It took me no time at all."

Behind the scenes

Happy customers are a testament to good planning, and Duke does plenty of that. But the school also is on the cutting-edge when it comes to technology, as its network management setup proves.

Duke was a beta-test site for Cabletron's Spectrum when it came out some five years ago and the university has worked closely with Cabletron ever since on improving it. Duke uses Spectrum to manage the hubs, routers, switches and other equipment comprising DukeNet.

But you won't find a traditional network operations center at Duke, with teams of operators sitting in front of management consoles watching for trouble. Rather, the Data Communications group has taken advantage of Spectrum's client/ server architecture, giving all 10 members of the team Spectrum console software for viewing the system.

Someone is always designated as the main focal point for alerts, but anyone can tap in if they need to.

The group can get away with this strategy because it has programmed Spectrum with policies that define how the system should respond to various types of alerts. These policies include detailed instructions on which operator should be contacted, depending on time of day and type of problem, Dodd says.

The first line of defense is a paging system. If the operator on duty doesn't respond within 15 minutes,

SWAT to the rescue; Duke University assembles a crack squad to tame an onslaught of PC-packing students
Network World January 5, 1998

Spectrum's SpectraPhone feature will track him down, calling various preprogrammed phone numbers repeatedly until it finds its man.

Duke is now at work on giving the help desk staff read-only access to Spectrum. That will arm them with knowledge of any network problems, which should help them provide more informed responses to user queries.

And the Customer Service group is at work on some major upgrades that will marry the best features of Platinum Technology, Inc.'s Apriori problem resolution system to the best of the Remedy tool. Verghis doesn't want to divulge details until the system has been thoroughly tested, but the intent is to promote more self-help. The system ultimately should be able to automatically respond to e-mail and Web-based queries with pointers to documents that can help. A library of more than 2,500 documents has already been assembled.

By the time Kristin Schroeder graduates in the year 2001, Duke's help desk may well have automated itself right out of existence.

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GRAPHIC: photos of Bill Chen, Bob Currier, Marlene Genetski, Philip Verghis, Michael Dodd, Kevin Cheung and Ginny Cake and Kristin Schroeder

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[Return to List](#)

3 of 14 DOCUMENTS

InternetWeek

April 8, 1996

MobileWare Software Moves to the 'Net

BYLINE: Jeffrey Schwartz

LENGTH: 366 words

LAS VEGAS MobileWare Corp. last week previewed software that leverages its software-agent technology to manage and automate links to the Web.

The software, demonstrated to analysts during the NetWorld+Interop trade show here, will use MobileWare agents to streamline WAN connections to the Internet by automatically accessing World Wide Web sites for an entire organization.

The as-yet-unnamed software automatically connects to Web sites based on user patterns or criteria selected by network managers and stores the retrieved data in cache on local servers. By doing so, network managers will be able to eliminate multiple concurrent WAN links to Web sites by users, according to Jack Blount, CEO of MobileWare, Dallas.

Virtual Firewall

"It does everything in the background while creating a virtual firewall," Blount said.

If an organization has hundreds of people that access a particular Web site, the agent software automatically connects to that server, retrieves data and stores pages locally. As a result, individuals can access Web information locally, thereby reducing the need for multiple WAN links, Blount said.

Cutting Costs

"This goes a step beyond search engines, where it could cut the communications costs considerably for companies with any number of users who frequently access the same Web sites," said William Ablondi, an analyst at Giga Information Group Inc., a Norwell, Mass., consultancy.

The client/server software will automatically check Web sites for individual users based on their usage patterns, Blount said. If a specific Web site is accessed regularly, the software can be programmed to check the site at pre-determined intervals and update users via an electronic-mail message that includes hot links to the Web data.

The software is based on the same code used in its MobileWare system, which is designed to let users connect to LANs over a variety of remote links including cellular and wireless connections. But that software, though praised by customers and analysts, has not been widely adopted.

MobileWare can be reached at www.mobileware.com or at 214-952-1200.

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[Return to List](#)

4 of 14 DOCUMENTS

Industrial Management + Data Systems

1997

Expert systems and the implementation of quality customer service

BYLINE: Eppinette, Matt; Inman, R. Anthony

SECTION: Vol. 97, No. 2; Pg. 63; ISSN: 02635577; CODEN: IMDSD8

LENGTH: 4220 words

The argument that expert systems are a useful tool in implementing quality customer service is presented with examinations of seven steps of customer service and illustrations of how expert systems can support each step also studied.

Matt Eppinette: Louisiana Tech University, Ruston, Louisiana, USA

R. Anthony Inman: Louisiana Tech University, Ruston, Louisiana, USA

For some time now, customer service has been emerging as a competitive weapon for business firms. Chase and Garvin (1989) state that, "it is becoming harder and harder to compete on manufacturing excellence alone. Manufacturers who thrive...will compete by bundling services with products." Of course, the use of customer service as a form of competition does not apply only to manufacturers. With the economy becoming increasingly service based and new kinds of services being offered continually (Schmenner, 1986), the input of customer service may be even more dynamic for non-manufacturers. It is probably safe to say that, in one form or another, all businesses are concerned with customer service. As early as 1972, Levitt noted that everyone is involved in service and that the service sector of the economy includes everything from banking and airlines to product-related services and sales-related services offered by manufacturers and retailers. Obviously, customer service is a part of all facets of our economy and is especially important to the long-term survival of companies.

With the increased importance of customer service comes increased concern with service quality. Denton (1994) asserts, "Customers are becoming increasingly militant about the quality of products and services they purchase." This concern is reflected in the current business literature (Chase and Garvin, 1989; Davidson and Uttal, 1989; Garvin, 1987; Sheridan, 1988) Also noteworthy is the number of different kinds of services reflecting this emphasis. Articles have appeared suggesting that quality service is an issue in the performing arts (Abbe-Decarroux, 1994), traffic management (Byrne, 1991), dietetics (Johnson et al., 1992), insurance (Barnes, 1992; National Underwriter Property & Casualty-Risk & Benefits Management, 1993), amusement (Cottee, 1993), banking (Madsen, 1993), and even human resources (Szpekman, 1992).

Expert systems play a key role in this search for service quality; for example, numerous articles detail the use of expert systems in accounting (Baldwin-Morgan, 1994; Englund et al., 1989; Flesher, 1987; Goldwater and Fogarty, 1993; McDuffie et al., 1994; Muggridge and Lymer, 1993; Phillips and Brown, 1991; Smith et al., 1991). Batchelor (1995) predicts that by 1999, 75 per cent of all legal documents will be written with the assistance of expert systems. Other industries that have discovered the utility of expert systems include the criminal justice system (Copley, 1994), health care, (Hospital and Health Services Administration, 1995), medicine ETH Commerce, Inc., 1996, Widman, 1996; ecology (Kuzmin and Solovyov, 1993), construction

(Lowe et al., 1993), finance (Leonard, 1993; Newquist, 1987; Oz et al., 1993; Widman, 1996), education (Kaula, 1993), municipal government (ETH Commerce, Inc., 1996) and agriculture (Repea, 1996a; 1996b). Non industry-specific uses for expert systems exist in maintenance (ETH Commerce, Inc., 1996), office procedures (ETH Commerce, Inc., 1996), equipment diagnosis (ETH Commerce, Inc., 1996), lab analysis (ETH Commerce, Inc., 1996), sales support, product design (ETH Commerce, Inc., 1996), training (ETH Commerce, Inc., 1996; Expert Legal Systems, 1996), quality control (Widman, 1996) and human resource management (Inoue, 1993; Lawler and Elliot, 1996). Tieperman et al. (1994) feel that expert systems are exigencies for service industries. A. Blanton Godfrey (1994), chairman of the Juran Institute, asserts that, "Information systems will be vital for gauging quality." This perspective provides the premiss for this paper.

In the early 1980s, an article by Takeuchi and Quelch (1983) appeared in the Harvard Business Review in which the authors put forth a seven-step customer service programme. This paper outlines possible uses of expert systems at each stage of the Takeuchi-Quelch customer service programme.

Expert systems

England et al. (1989) say that "expert systems are computer programs that emulate human thinking processes in problem-solving situations", and their goal is "to arrive at the same results that a specific human mental process would produce". Expert systems differ from traditional decision support systems in that the output of an expert system is a conclusion, recommendation or decision, whereas the output of a decision support system is information to be utilized in arriving at a conclusion, recommendation or decision. From a process standpoint, this implies that a traditional decision support system has data as its input and information as its output, but an expert system has information or data as its input and a decision or conclusion as its output. In this sense, an expert system is a step beyond a decision support system. Services, known for their perishability, inconsistency, simultaneous production and consumption, and required personal interaction, would then represent a classification into which some organizational output falls.

The ability of expert systems to come to a conclusion, and to come to the same conclusion given the same input time and time again, is what makes them so applicable to the delivery of a service. Also, expert systems allow the inclusion of uncertain or incomplete information into the decision process, thus more fully mimicking the human decision-making process. In a customer service situation, the ability to incorporate uncertainty into decision making is indispensable.

Takeuchi and Quelch (1983) give a seven-step quality customer service implementation process. The steps are as follows:

- 1 Educate your customers.
- 2 Educate your employees.
- 3 Be efficient first, nice second.
- 4 Standardize service response systems.
- 5 Develop a pricing policy.
- 6 Involve subcontractors, if necessary.
- 7 Evaluate customer service.

We can apply expert systems to each step of the above quality service implementation process.

Educate your customers

Expert systems could be employed in a variety of situations involving customers, from purchasing decisions to repair decisions. An expert system could ask the customer for specific information about his/her

needs and return a recommendation on what product or products might best suit those needs. Also, in a repair situation, an expert system could query the customer about the nature of the difficulties and suggest some course of action that might ameliorate the situation. This could reduce the number of calls for highly trained service technicians to solve minor problems. Motiwala and Gargeya (1992) cite the example of an expert system for diagnosing car-care problems which "benefit the service consumer because the consumer can seek answers from the expert system to, what the consumers may consider, even apparently naive questions without being concerned about embarrassing themselves." If the recommended course of action is to schedule a service call or to order a part, the expert system could be linked to other systems so that a service call is scheduled or a part is ordered.

The Egyptian Ministry of Agriculture found that expert systems can provide agricultural assistance when a specialist is not available (Refea, 1996b). Expert systems can combine expertise in plant pathology, entomology, horticulture and agricultural meteorology into a framework that addresses the specific, on-site needs of farmers.

Expert systems could be set up so that customers dial a number and communicate via touch-tone phone, or perhaps even a computer bulletin board where the customer could contact the expert system via a modem. With more computers now making use of graphical user interfaces, the level of sophistication required of the customer would be very low, allowing potential use to be very widespread.

Educate your employees

Not only do employees need to be trained in how to deal with customers, they must also know how to do their jobs well. Usually, those who have been doing the job the longest are the most skilled. Expert systems offer a way for that expertise to be shared with everyone in the organization, and a method for preserving that expertise. This becomes especially important when experienced personnel are promoted or retire. Oz et al. (1993) assert that expert systems are useful as training tools "since training can be accomplished coincidentally to the productive work of a novice user." That is, the employee not only learns by doing but, because of the expert system, he can learn while doing it right. They also hypothesize that users of expert systems are able to improve the quality of their own decisions over time.

IBM found that the use of expert systems cuts technician training in its hard disk plant by 25 per cent (ETH Commerce, Inc., 1996). They reported that juniors assisted by an expert system learned the system's reasoning, and in four months behaved like veterans of 16 months' training.

For those that are already skilled, expert systems can also help improve performance. In situations where speed is crucial, such as aircraft trouble resolution and chemical spill identification, expert systems can certainly enhance current skills. A Quebec hospital uses a system for rapidly identifying poisons in emergency rooms (ETH Commerce, Inc., 1996). By using an expert system, a salesman can draw up a quote that matches all the client's needs while the client is still "hot" (ETH Commerce, Inc., 1996). Use of an expert system to match patient needs with hospital bed characteristics frees hospital personnel to concentrate on the unique aspects of patient admissions and transfers (Anon, 1995). Expert systems that draft legal documents allow lawyers more time to focus on the key issues and their clients' needs (Expert Legal Systems, 1996).

Studies have shown that training in the use of expert systems even helps improve the performance of agricultural extension agents (Refea, 1996a). Tests were conducted to measure the effect of expert systems training on the performance of agricultural extension agents in Egypt. A "before and after" comparison revealed substantial increases in scores on tests involving disorder verification, treatment, irrigation, and fertilization, after training with expert systems. In some instances the expert system is used as a training mechanism itself. The Texas College of Osteopathic Medicine used expert systems programs to allow medical trainees to encounter symptoms in specific problem areas (Marcus et al., 1996). After arriving at a diagnosis, the students could compare their analytic processes with those of the experts (via the expert system). In this way, they learned how the experts arrived at their diagnosis. The students exposed to the expert systems training were found to have statistically superior diagnostic accuracy to conventionally trained students.

Finally, expert systems can improve the performance of the skilled by increasing accuracy. The City of Toronto buildings department has to adjust complicated pay packets each time a worker's profile changes. Prior to using an expert system, only 45 per cent of adjustments were done correctly. Now they are done accurately, 20,000 times a year, by a staff of two supported by one expert system (ETH Commerce, Inc., 1996).

These examples suggest that employees be provided with computer terminals at their work stations or "behind the counter" so that whenever they come into contact with a customer they can access the expert system as needed. Again, the use of graphical user interfaces can facilitate the implementation of this technology.

Be efficient first, nice second

One great benefit of expert systems, especially with current advances in computer technology, is the speed with which they allow decisions to be made. With some systems you merely answer a series of questions and are quickly provided with solutions. Reading through reference material, locating and reading text, and applying it to a particular situation once took hours or even days. An expert system can do all this automatically within minutes. It has been reported that one may "generally expect an expert system to reduce a day's evaluation and decision work to about ten minutes" (ETH Commerce, Inc., 1996).

The City of Toronto has used an expert system to judge applications for commercial signs on buildings (ETH Commerce, Inc., 1996). What used to take the staff an hour (referring to by-laws), 400 times a year, now takes two minutes with no errors. Credit card companies can make rapid decisions about whether to extend credit for individual transactions by customers and by manufacturers (Widman, 1996). American Express implemented expert systems to speed up this process (Oz et al., 1993). This allows American Express to forgo the usual preset credit limits of other cards and thus put them at a competitive advantage. When customers are not kept waiting for responses, they are less likely to "ruffle" the employees, thus leading to service that is both efficient and nice. There are also a number of expert systems used to provide after-sales customer support (Kader, 1992).

Additionally, an expert system can create multiple documents from the same transaction information. This lets the computer handle the mundane and time-consuming drafting, saving clerks and secretaries hours in editing and word processing. A five hour drafting task can now be done in an hour and a half (Expert Legal Services, 1996).

Standardize service response systems

Because the expert system is filled with correct advice, it helps to prevent incorrect decisions. It also ensures that the same decision is made time after time, given the same information. This leads to uniformity in customer service, thereby reducing customer complaints that delay regular work. "Judgement calls" are not left to the discretion of employees; rather, they are fed into the expert system which will always return the same result for that set of circumstances. The system does not have impaired judgement or memory, it never gets sick, and it is unprejudiced. It never has a "bad day" nor does it resign, retire or die (ETH Commerce, Inc., 1996). Standardization will increase the efficiency of delivery and the satisfaction of customers.

An expert system can be made to work with probabilities, unknowns and uncertainties (ETH Commerce, Inc., 1996). This ability to incorporate uncertainty will also be very useful in customer service situations. Customers may only be able to provide vague information about the nature of the problem they are experiencing. When this occurs, the expert system can provide options and assign confidence levels to certain solutions. This allows the employee and the customer to make enlightened decisions.

Develop a pricing policy

Nothing lasts forever and customers know that. They are not expecting (usually) that all of the service for a product will be free forever. Some companies take the approach of selling the product cheaply and using service as a profit centre, while others feel that the price of both the product and the service should be reasonable. One way to increase the profit margin on any product or service is to make its

manufacture/delivery more efficient. The previous section provided numerous examples of how expert systems improve efficiency. In addition, it is reasonable to assume that the ability of several people to have access to the knowledge of a single or a few experts, whenever and wherever they need it, without having to pay the expert to be everywhere all of the time, is very efficient. Expert systems may allow a company to gain an advantage over competitors by offering greater availability of product/service at a lower cost. Canon has used expert systems to speed up the design of camera lenses, thereby increasing market share (ETH Commerce, Inc., 1996). Hospitals' use of expert systems in bed control (a resource allocation that has an impact on both average length of stay and salaries) has also had an impact on cost (Anon, 1995).

Involve subcontractors, if necessary

Expert systems could be directly tied to subcontractors. In the case where an expert system was used to suggest a remedy for a particular problem, the suggested remedy could be to contact a subcontractor, or preferably the expert system could gather the needed information and forward it to the subcontractor. The system has already assisted by decreasing information transfer and retrieval time and by decreasing the probability of communication error (Anon, 1995). In fact, it has been reported that many expert systems refer about 20 per cent of cases to a human specialist (ETH Commerce, Inc., 1996).

Perhaps one of the decisions the expert system could make is when to call in an outside contractor. The expert system would determine when the customer service function is approaching overload, and contact the appropriate subcontractor.

Evaluate customer service

Experts systems have the ability to recall and explain the methods and reasons for a decision. Another feature is the ability to incorporate new information and new knowledge into the expert system. Also, computers will remember anything you tell them to remember. That is, you could have the expert system keep a "transcript" of the cases with which it deals and summarize them in report form. This will allow management to see areas where the same situations arose repeatedly, and to make corrections where necessary. Also, as conditions change, the expert system can very easily be updated to make use of new expertise.

Conclusion

This paper has argued three points. First, customer service is important to all businesses. Any organization that has customers has demands for some level of service. Second, the quality of customer service is becoming an increasingly important aspect of doing business today. Company survival may depend on it. Third, expert systems can be a contributor to the quality of customer service. Decisions are improved and efficiency is enhanced when expert systems are employed. Expert systems can assist companies in meeting and exceeding the expectations of customers. Their use should not be overlooked as an opportunity for gaining a competitive advantage through quality customerservice.

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[Return to List](#)

5 of 14 DOCUMENTS

PR Newswire

December 18, 2001, Tuesday

Diebold Obtains ATM Monitoring Contract for Largest Deployer of Casino ATMs

SECTION: FINANCIAL NEWS

LENGTH: 526 words

DATELINE: NORTH CANTON, Ohio, Dec. 18

Diebold has joined forces with Global Cash Access (GCA), the largest deployer of automated teller machines (ATMs) in casinos, to bring increased monitoring capabilities to more than 1,000 ATMs using its patented Diebold Advisor(TM) service. Diebold Advisor is a highly automated system that monitors every aspect of an ATM's status, including events such as low cash or receipt paper levels and problems with card readers. It can also identify potential operational difficulties, allowing corrective action that may prevent the ATM from going offline.

(Photo: <http://www.newscom.com/cgi-bin/prnh/20000608/DIEBLOGO>)

Through Diebold Advisor, ATM status information is transmitted to the Diebold Customer and Technology Support Center. Based on a predefined set of rules, Diebold Advisor automatically contacts the appropriate service provider and tracks the progress of the repair. Trouble report messages are sent via pager, fax, e-mail, voice response system or DECAL (Diebold's proprietary electronic customer access [link](#)), which allows customers to monitor and generate [service calls](#) from any computer with an Internet browser. If the service provider does not acknowledge receipt of the message within a defined time frame, Diebold Advisor can automatically escalate the request to a higher level and continue to do so until a response is received.

"GCA is committed to providing the most highly reliable and technologically advanced ATMs to the gaming industry," said Jeffrey Crisp, ATM operations manager, Global Cash Access. "Diebold Advisor allows us to take this commitment to the next level by more quickly detecting, solving and preventing issues at the ATM."

Formed in 1998 as a joint venture of First Data Corp. (NYSE: FDC) and M&C International, Inc., Global Cash Access is the leading provider of cash access, financial management and customer relationship marketing technologies to the gaming industry. With the gaming industry's largest patron database, Global Cash Access uses Internet technologies to deliver products and services to more than 1,000 gaming properties throughout the US, Canada, Caribbean and Europe. GCA processes more than \$11.5 billion in funds transfers every year through approximately 200,000 ATM, credit and debit cash advance and check guarantee transactions daily -- which is more than 75.5 million transactions annually.

Diebold, Incorporated is a global leader in providing integrated self-service delivery systems and services. Diebold employs more than 12,000 associates with representation in more than 80 countries worldwide and headquarters in North Canton, Ohio, USA. Diebold reported revenue of \$1.7 billion in 2000 and is publicly traded on the New York Stock Exchange under the symbol 'DBD.' For more information, visit the company's Web site at www.diebold.com.

SOURCE Diebold, Incorporated

CONTACT: Media, Tiffini Bloniarz, +1-330-490-6319, or bloniat@diebold.com; or Investors John Kristoff, +1-330-490-5900, or kristoj@diebold.com, both of Diebold, Incorporated

Diebold Obtains ATM Monitoring Contract for Largest Deployer of Casino ATMs PR Newswire December 18, 2001, Tuesday

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[Return to List](#)

6 of 14 DOCUMENTS

Utility Week

May 18, 2001

WIRE ME THE BILL

BYLINE: Karma Waddington**BILLS- MASON**

SECTION: FEATURES; Pg. 26 26

LENGTH: 1543 words

Paper-based billing systems are slow and expensive . Harry McDermott looks forward to a faster, cheaper digital future.

The explosive growth of the internet has convinced many utility companies that a significant opportunity exists to re-engineer the process of bill presentation through the replacement of hard copy production and physical distribution with online Electronic Bill Presentment and Payment (EBPP).

To date, bill presentment has been carried out by traditional means with all bills posted to consumer and business premises. The billing data is generated by utilities' billing systems and the relevant data extracts are then forwarded in electronic format (online or offline) to high performance volume printers. The printers read the billing data and, using pre-formatted paper, print off many thousands of hard copy bills. The bills are then enveloped and distributed via the Post Office to the households of individual customers. Payment then takes place via cash, cheque or Direct Debit. Even in the case of Direct Debit customers, a bill statement needs to be presented to the payer via the postal system.

The electronic bill presentment model differs technologically from the traditional bill presentment model. Instead of arranging the transfer of billing system data to a printer, the data is transferred to a web server where a bill presentment application creates an electronic soft copy of what would ordinarily be printed in hard copy. The utility's customers can then access a secure website and have their bills presented online. Bill payment can also take place online.

The opportunity presented by EBPP has been recognised by many players in international markets. The experience of the US has resulted in the emergence of two EBPP market models: the biller-direct model and the aggregator model.

In the biller-direct model, bill issuers present bills directly to customers via their own websites. This is of benefit to the bill issuers as they retain direct control of the interface to their customers. Customer information is precious and many companies may feel more secure keeping this in-house.

In contrast, however, the payer is inconvenienced insofar as he must access a number of bill issuers' websites to access different bills. This can be time consuming for the user, although he is likely to find full bill information, rather than a simple price summary, if the online bill is issued direct from the company to which payment is due.

In the aggregator model, the payer accesses a single website where all his bills are presented electronically. This new entity (the aggregator) enters into commercial agreements with the different bill

issuers to consolidate their billing data and streamline the presentation to the payer. Whereas this model is of benefit to the payer, it is of strategic concern to the bill issuers as the aggregator is positioned as a new intermediary between them and their customers.

Within the aggregator EBPP model, there are two further sub-models: the 'thin' aggregator, and the 'thick' aggregator.

A 'thick' aggregator presents a full bill in electronic format to the payer. All the detail that ordinarily appears on a paper bill is presented electronically to the payer via the aggregator website. In effect, the electronic bill is an online replica of the paper bill.

A 'thin' aggregator presents only a summary of the main items of the bill. For example, the thin aggregator service may simply list the name of the bill issuer, the customer account number, the amount owed and the payment deadline. Instead of the payer being presented with a myriad of billing data from different companies, a user-friendly summary is made available.

The provision of EBPP services is likely to emerge from a range of potential sources.

Banks are traditional providers of over-the-counter payment services. Banks are also high volume issuers of credit card bills and account statements. It is an obvious extension of the banking business to provide internet-based EBPP offerings.

All leading telecommunications operators have a direct billing relationship with hundreds of thousands of customers. Likewise, the telecoms operators have subsidiary internet services providers. Many of these provide a full one-stop -shop service to online merchants covering the entire payment cycle. They are equally capable of moving into the EBPP space.

Many major utility players have created or partnered with a telecoms or customer relationship management company to leverage additional income from their client base as well as to make savings through aggregating their various billing and customer management services.

Having already created combined billing systems, multi-utility companies are ideally placed to move into EBPP, primarily for internal billing but also to offer EBPP services to smaller single utilities that are not driven by the same economies of scale.

Geographical markets that are unserved by EBPP offerings can be 'invaded' by successful overseas aggregators seeking to leverage their advanced position along the learning curve.

Successful internet portals also have the potential to enter the EBPP market. Joint ventures between portals and financial institutions can capture the 'mindshare' of the customer.

Finally, post offices offer over-the-counter bill payment services. This competes directly with banks' traditional bill payment service offered through the banking retail branch network. It is highly probable that post offices will also enter the market for EBPP services.

In the business-to-consumer segment, the biller-direct model will happen as a matter of course. However, it will co-exist in tandem with the aggregator model. Some high volume bill issuers will want to electronically present their 'thick' bills directly to their customers. However, a thin aggregator can offer a complementary service to consolidate billing data on behalf of payers and give them the option to pay their bills in a central location. Should the payers wish to see a more detailed breakdown of their bills, the thin aggregator can redirect them to the respective bill issuer's site.

Via the aggregator service, customers will be offered the user-friendly option to consolidate their bill payment into one single transaction whereby the individual payments are reconciled to the individual bill issuers. This adds significant value to the customer's bill payment experience.

In the business-to-business segment, the biller-direct model is likely to prevail, as businesses are

generally reluctant to outsource any aspect of their billing or invoicing.

For the purpose of bringing the EBPP service to market, the main initial delivery channel will be PC-based internet access. However, over time, the service will become independent of access device and delivery channel. There are a number of technological developments in the market which will create alternative EBPP channels to market:

1aThe new wireless access protocol allows web-enabled content to be distributed over GSM networks to mobile phones. 'Thin' customer bills could be distributed by this means.

1aUsing digital television technology, bills could be presented to customers on TV screens rather than PCs.

1aInternet telephony is the subject of strategic research by all suppliers of e-commerce infrastructure. It is envisaged that access to call centres will soon be embedded in company websites, thereby facilitating direct contact with people from the website itself. Theoretically, therefore, customers could have their bills presented to them on the aggregator website with an option to pay over the phone via an embedded internet [link to a customer service call centre](#).

1aAutomated Teller Machines (ATMs) also represent a potential EBPP delivery channel. A customer would insert a smartcard into the ATM and be presented with an EBPP option to view bills on the ATM screen. During the same ATM session, payment could be settled via an instruction to debit the customer's current account.

EBPP is a strategic market development which presents opportunities and threats to utility companies. There are opportunities for utilities to leverage their customer base and to diversify into the new EBPP market. Opportunities also exist for previously unknown companies to build an online brand and create completely new EBPP markets. This threatens the payment franchise of traditional bill payment processors such as banks and post offices.

EBPP represents a market development that will, in the medium term, completely re-write the rules regarding bill payment. Whereas traditionally most bills have been paid using hard copy printouts and postal distribution, the EBPP future envisages bill payment via PCs, mobile phones, TV sets, personal digital assistants and so on. Utility companies must proactively analyse this from a strategic perspective. Those that ignore it, do so at their peril. EBPP is no longer a concept; it is real, it is with us today, and it is here to stay. n

1aHarry McDermott is a director at telecoms consultancy Mason Communications
(harry.mcdermott@masoncom.com)

www.reedbusiness.com/industrial.htm Magazine

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[Return to List](#)

7 of 14 DOCUMENTS

Informationweek

April 9, 2001

Software adds a human touch--and voice

BYLINE: Colkin, Eileen

SECTION: Pg. 34; ISSN: 87506874; CODEN: INFWE4

LENGTH: 403 words

HEADNOTE: ONE-CLICK EMAIL LINKS CONNECTS CUSTOMERS TO CALL-CENTER REPS THROUGH COMPUTER MIKES

EStara Inc. last week unveiled software aimed at adding a human element to e-mail marketing. OneClick eMail Links embeds an HTML link into e-mails delivered to customers. When activated, the link automatically places an Internet phone call to call centers, where representatives can talk to customers through the microphone and speakers on their computers. Customers do not have to disconnect their dial-up link.

E-mail is one of the easiest and most efficient ways for businesses to communicate with customers, but it's also one of the least personal. EStara Inc. last week unveiled software aimed at adding a human element to E-mail marketing.

OneClick eMail Links embeds an HTML link into E-mails delivered to customers. When activated, the link automatically places an Internet phone call to call centers, where representatives can talk to customers through the microphone and speakers on their computers. Customers don't have to disconnect their dial-up link, which is useful since more than 60% of consumers access the Internet via their household telephone line, according to Jupiter Media Metrics.

Customers who notice accounting errors on retailers' E-mail invoices can click to a service representative to discuss the discrepancy. Or, OneClick can be attached to opt-in promotional E-mails that let customers click the link to reach sales agents via their computers. The agents can push Web pages to customers' browsers to give real-time visuals of product or account data.

IT and marketing managers who opt to use the package should be aware of a few caveats. Although eStara uses echo suppression to give voices a more natural sound, Internet calls are transmitted over a packet network with unpredictable performance. Companies also may need to add reps to their call centers to respond to customers around the clock. "There's a greater immediacy and a call to action with E-mail, and that puts a lot more burden on the retail company themselves," says David Daniels, a Jupiter CRM analyst.

EStara's main competitor is ITXC, whose Push to TalkService uses an ASP model to offer E-mail-to-voice or E-mail-to-text chat options. eStara's pricing is prorated based on the volume of clickthroughs; ITXC charges 75 cents per call. -EILEEN COLKIN (ecolkin@cmp.com)

For more on E-mail and customer service, see Tech Analyzer, p. 59

More on E-mail: informationweek.com/832/estara.htm

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[Return to List](#)

8 of 14 DOCUMENTS

PR Newswire

April 2, 2001, Monday

eStara Launches OneClick eMail Links(SM) Service; High-Quality Web Voice Technology is Now Available For eMail-Based Marketing and Customer Support

SECTION: FINANCIAL NEWS

LENGTH: 642 words

DATELINE: RESTON, Va., April 2

eStara Inc. announced today that OneClick eMail Links(SM) are now commercially available to drive inbound calling campaigns directly from email messages, enhancing email response rates, increasing sales and achieving true one-to-one customer connections through the power of live voice conversation.

OneClick eMail Links let businesses extend the reach of their call center agents to email-based marketing and customer service campaigns. With OneClick eMail Links, email recipients simply click a link embedded in a message to speak with a company representative live over the Internet. There are no phone numbers to dial or extra phone lines needed to connect the web call. The total connection time averages less than 20 seconds using a standard 56 KB dial-up modem.

Real Life Usage:

* SALES/PROMOTIONAL OFFER

A recipient of a new promotional email or "secret sale" offer from a favorite travel site only needs to click an icon to talk with a company representative, get questions answered and book a flight.

* ORDER CONFIRMATION

A customer with questions about a recent computer software order just clicks the embedded email link in a confirmation email to speak with a call center agent and get shipping or order details.

* PREMIER CUSTOMER SERVICE

A financial services firm offers its select, high-value customers the convenience of one-on-one consultation through OneClick Contact eMail links.

"eStara brings the power of live voice conversation to email, marrying voice -- the most preferred customer contact method -- with the fastest growing web-based marketing and sales channel," said Tom Natelli, eStara's chairman, CEO and co-founder. "eStara OneClick eMail Links were developed to boost response rates and improve ROI on email marketing and customer service campaigns."

Targeted, one-to-one email will spur growth and popularize email as an effective customer contact medium, according to recent eMarketer research. The number of active email users in the U.S. is expected to jump to 140 million by 2003 from 78 million in 1999. And by 2003, the number of permission-based, opt-in emails will rise to 227 million from 64.4 million in 1999.

eStara Launches OneClick eMail Links(SM) Service;High-Quality Web Voice Technology is Now Available
For eMail-Based Marketing and Customer Support PR Newswire April 2, 2001, Monday

OneClick eMail links leverage a company's existing contact center and email distribution infrastructure to take advantage of this growth. The service requires no new software or hardware investment and is not based on NetMeeting. eStara OneClick eMail Links are compatible with email clients and web email services including: AOL, Microsoft Hotmail, Excite, Yahoo, Netscape, Earthlink/Mindspring and NetZero.

About eStara

eStara, headquartered in Reston, VA, gives the power of voice to eBusiness with OneClick Contact(SM) web voice solutions. OneClick Contact(SM) lets online customers talk directly with call center agents over the Internet with the click of a button. eStara web voice solutions can be embedded in website pages, emails and ad banners. OneClick Contact(SM) is completely compatible with existing call center systems, so there's no installation, capital investment or system integration required. eStara web voice users include J.Crew, Allfirst Bank and the NHL's Washington Capitals. eStara won Internet Telephony Magazine's Editors' Choice Award for 2001. Experience the quality of eStara web voice at <http://www.estara.com> .

OneClick Contact and One Click eMail Links are service marks of eStara, Inc. All trademarks, trade names, and service marks mentioned herein belong to their respective owners.

SOURCE eStara Inc.

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[Return to List](#)

9 of 14 DOCUMENTS

PR Newswire

May 24, 1999, Monday - 00:01 Eastern Time

Audio, Video, Online Forms Among New U S WEST Dex Web Site Service Custom Enhancements for Small Businesses; New Offerings Meet Needs of Growing Number of Small Businesses Seeking a More Advanced Internet Presence

SECTION: Financial News

LENGTH: 714 words

DATELINE: ENGLEWOOD, Colo., May 24

A growing number of small businesses are looking to the Internet to help them increase and better manage their business. To create a site that informs and generates sales, site owners need to keep their sites appealing, valuable and "sticky," meaning visitors turn into repeat visitors.

With U S WEST Dex's introduction of custom enhancements for its Web site service, including online forms, and audio and video capabilities, businesses can do both.

"Small businesses can now look to Dex to make their site more interactive and to get the information they need from their customers to make their Internet efforts even more successful," said Jeff Tarr, vice president and general manager of the U S WEST Dex Internet Group. "With these new custom enhancements, most small businesses will be able to do everything they want and need to maximize the effectiveness of their Web sites."

The new custom enhancements for Dex-created Web sites include a free online form for gathering visitor information and generating leads, and audio and video capabilities to draw attention to special areas of the site and provide a more robust multi-media experience. The standard online form requests visitor information such as name, address, phone, fax, e-mail and comments and is submitted by the visitor to the customer's e-mail address. Custom online forms are also available at a cost based on the customer's needs.

Other available enhancements include:

- animated graphics
- coupons
- custom backgrounds
- custom navigation schemes
- restaurant menus
- counters

The counter is available at a one-time cost of \$99 and tracks the number of first-page visits to a customer's Web site. Pricing for other custom enhancements, including custom online forms, vary based on customer needs.

Dex announced its Web site service late last month and now has more than 3,000 customers of the service. The cost of a one- to five-page Dex-created Web site ranges from \$29.95 to \$49.95 per month, and includes development;

Audio, Video, Online Forms Among New U S WEST Dex Web Site Service Custom Enhancements for Small Businesses; New Offerings Meet Needs of Growing Number of Small Businesses Seeking a More Advanced Internet Presence PR Newswire May 24, 1999, Monday

hosting; a personal Web site address; a link from uswestdex.com (<http://uswestdex.com>), the region's leading Internet Yellow Pages *service*, to the company's site; an *embedded e-mail link* from the *customer's* Web site to the *customer's e-mail* address which allows prospects to electronically interact with the *customer*; five embedded links from the *customer's* Web site to five sites of the *customer's* choosing; and two graphics and 250 words per page. There are no set-up fees for the standard offering.

Dex's Web site service is just one example of the company's commitment to meeting the needs of small businesses. The print and online advertising source for small businesses in its 14-state region, Dex provides Internet marketing solutions, including bundled print and online directory advertising services and products, and a local banner advertising service which helps small businesses cost-effectively reach only local consumers via top-branded national Web sites, such as AltaVista, USA Today and Dilbert.

For more information on Dex products and services, contact your Dex sales representative, visit <http://uswestdex.com> or call 800-422-1234 and press "3" for information on advertising.

About U S WEST Dex

U S WEST Dex is the print and online directory publishing arm of U S WEST, Inc. (NYSE: USW). In addition to its print directories, Dex has several Web-related offerings. The company's uswestdex.com site (<http://uswestdex.com>) has the most monthly visits, features the most accurate business and white pages listings, and has the most advertisers of any online directory in U S WEST's 14-state service area. Additionally, Dex provides Web site development and hosting, local banner advertising, Web site and e-mail links, and InfoPages -- all targeted to small and medium-sized businesses.

U S WEST, Inc. provides a full range of telecommunications services -- including wireline, wireless PCS, directory services and data networking -- to more than 25 million customers nationally and in 14 western and midwestern states.

SOURCE U S WEST Dex

CONTACT: Gregg Stucker of U S WEST Dex, 303-784-2572, gstucke@uswest.com, or Berit Sunde of Shandwick International, 612-841-6152, bsunde@shandwick.com, for U S WEST Dex

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[Return to List](#)

10 of 14 DOCUMENTS

Informationweek

April 9, 2001

Software adds a human touch--and voice

BYLINE: Colkin, Eileen

SECTION: Pg. 34; ISSN: 87506874; CODEN: INFWE4

LENGTH: 403 words

HEADNOTE: ONE-CLICK EMAIL LINKS CONNECTS CUSTOMERS TO CALL-CENTER REPS THROUGH COMPUTER MIKES

EStara Inc. last week unveiled software aimed at adding a human element to e-mail marketing. OneClick eMail Links embeds an HTML link into E-mails delivered to customers. When activated, the link automatically places an Internet phone call to call centers, where representatives can talk to customers through the microphone and speakers on their computers. Customers do not have to disconnect their dial-up link.

E-mail is one of the easiest and most efficient ways for businesses to communicate with customers, but it's also one of the least personal. EStara Inc. last week unveiled software aimed at adding a human element to E-mail marketing.

OneClick eMail Links embeds an HTML link into E-mails delivered to customers. When activated, the link automatically places an Internet phone call to call centers, where representatives can talk to customers through the microphone and speakers on their computers. Customers don't have to disconnect their dial-up link, which is useful since more than 60% of consumers access the Internet via their household telephone line, according to Jupiter Media Metrics.

Customers who notice accounting errors on retailers' E-mail invoices can click to a service representative to discuss the discrepancy. Or, OneClick can be attached to opt-in promotional E-mails that let customers click the link to reach sales agents via their computers. The agents can push Web pages to customers' browsers to give real-time visuals of product or account data.

IT and marketing managers who opt to use the package should be aware of a few caveats. Although eStara uses echo suppression to give voices a more natural sound, Internet calls are transmitted over a packet network with unpredictable performance. Companies also may need to add reps to their call centers to respond to customers around the clock. "There's a greater immediacy and a call to action with E-mail, and that puts a lot more burden on the retail company themselves," says David Daniels, a Jupiter CRM analyst.

EStara's main competitor is ITXC, whose Push to TalkService uses an ASP model to offer E-mail-to-voice or E-mail-to-text chat options. eStara's pricing is prorated based on the volume of clickthroughs; ITXC charges 75 cents per call. -EILEEN COLKIN (ecolkin@cmp.com)

For more on E-mail and customer service, see Tech Analyzer, p. 59

More on E-mail: informationweek.com/832/estara.htm

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[Return to List](#)

11 of 14 DOCUMENTS

Inc.

October, 1997

Seeing the Sites

BYLINE: BY LEIGH BUCHANAN

SECTION: SPECIAL ISSUE; INC. 500; The Web; Pg. 134

LENGTH: 2866 words

HIGHLIGHT: How I visited 118 less-than-state-of-the-art Web sites in 22 days on a T1 line at peak user periods and didn't even get a lousy T-shirt

MY FATHER LIKES TO BOAST that he once viewed the entire contents of the Louvre in three and a half hours. He would have done it in three, but they'd just brought up 80 paintings from the basement, and that set him back a bit.

I embarked upon my tour of the *Inc.* 500's Web sites with a similar mind-set. Confronted with 277 sites and a deadline, I worried mostly about covering acreage. The distinctiveness of the sites, I assumed, would prevent them from dissolving into a meaningless blur of buttons and frames. My plan was to compose from pixels of individual excellence a snapshot of the current state of the small-business Web.

Well, that didn't happen. After eyeballing some 118 sites (no, I didn't get to all 277; try it yourself before you do any stone casting), what struck me most was their homogeneity. Here we had companies representing the fast-growth *crème de la crème*, many with charismatic leaders, dramatic birth legends, idiosyncratic cultures . . . and Web sites that looked as though they had sprung fully formed from the same generic marketing group.

More disturbing than many sites' humdrumness, however, was their apparent lack of any good reason to exist at all. It's not just that few companies are selling over the Net. The problem is that so many companies have simply thrown up placeholders in cyberspace, with no visible strategy for extending or enhancing their businesses there. There is no effort to engage, let alone serve, customers. No exploitation of the media beyond the most elementary navigational tools. No deepening or customizing of information so that visitors can learn more than they would from a print ad or a brochure.

But before I launch into individual critiques, a couple of qualifiers. First, most of these sites are new. One of them may prove to be the next www.cisco.com and is just unrecognizable as such while it's still in short pants. Second, Web sites change every day. By the time this article appears, the sites mentioned may bear no resemblance to their descriptions here. In fact, many may now look oh-so-smart, leaving me with my mug covered in albumen. Finally, some companies may argue that there's no point expending significant time and money on something that may not produce results. Possibly. But I say that if a thing is worth doing . . . well, go ask your moms.

'Tis Better to Have Tried and Sucked

Failure on the Web comes in many forms: some failures are noble but most are simply drab and un compelling. There is, for example, a serious failure of ambition at the site of Select Comfort (#82) which,

I'm guessing, largely duplicates the mattress maker's print advertising. The entire site consists of three pages of infomercial-esque prose ("Do you toss and turn at night?") and three uninspired graphics. The company offers brief descriptions of its three styles but no pictures. And since prices range from \$ 299.99 to \$ 1,789.99, a chart giving customers some idea of what it costs to get a good night's sleep would be a help.

I certainly hope visitors to the site are ordering Select Comfort's free video. (I would cheerfully have watched it myself had it been on-line.) Oddly enough, considering the company's devotion to recruiting (see "The Right Fit," page 104), Select Comfort doesn't look for employees via cyberspace. To its credit, the company does make an effort to collect customer data, a smart tactic that may lead to more customized delivery in the future. Overall, though, the site is a snore.

By comparison, Enviro-Check's site is a thing of beauty and a joy forever. The company (#268), which specializes in water conservation, uses an elegant water motif in its graphics and icons, and the design and color scheme are unusually attractive. But when I visited, the site was a graveyard of dead links. (Customer Data Center: dead. Employee Data Center: dead. Customer Online Support: dead.) Presumably, Enviro-Check has big plans for its site, including the kinds of customer service that make a Web habitue's heart go pitter-pat. But with no on-site explanation of what's in store, the thing comes across as a ghost town. All that's missing are the Java-ized tumbleweeds.

Of course, Web sites for some industries are like toy giveaways for fast-food joints. They're so de rigueur that you don't score a lot of points for having one. Fugazy Executive Travel (#340), for example, is a perfectly serviceable -- if visually unexciting -- site, where you can make reservations on the Web (using Sabre) or via E-mail, calculate currency, and do other on-line travel tricks. But the company is so clearly technology-intensive that I wonder why such fax-based services as seat mapping and itinerary generation aren't also available. The Travel Encyclopedia is a nice idea but is full of dead links: practically the entire frequent-flier-club section is missing in action. And even as a hard-core East Coaster, I can't quite convince myself how a site offering city information can mention only New York and Boston and then head home for the day. Since Fugazy's customers are corporations that buy travel services long term, it probably doesn't need to offer the scope and panache of Rosenbluth International's very fine Travelution, or of Web-only companies such as Travelocity. Still, travel is one industry that is becoming rapidly -- and skillfully -- Webbified. Fugazy is very close, but the cigar lacketh.

The Patty Duke Syndrome

My complaint that many of the *Inc.* 500's Web sites look alike may not be entirely fair. After all, more than three-quarters of those companies with an Internet presence deal -- directly or indirectly -- with computer-related products or services. Still, experienced en masse, these sites take on the quality of a newspaper personals section, with entry after entry offering the business equivalents of beach strolling, fireplaces, and sunsets. All those uninspired mission statements. All those sterile product descriptions. All those globes.

Not that there's anything inherently wrong with the "This is our company, these are our products, here's what our customers say, and wouldn't you like to come work for us?" format. But the Web offers companies an opportunity to be a little more personal, a little more forthcoming, a little more *creative* than they might be in traditional marketing or transactional media. And few of these sites take advantage of that.

It doesn't take much to convey character on-line. CableLink (#98), a supplier of cable to resellers and OEMs (original equipment manufacturers), does it with employee-information pages that showcase not only the company's marquee titles but also everyone from Custom Department Technician Chris Stevenson ("the world's BIGGEST Mech Warrior fan") to Jeremy, who's only part-time until he goes back to college next semester. But -- hmm -- those descriptive blurbs appear under every employee's photo *except* for those of upper management. (OK, chief financial officer Mark Berret is labeled "The Money Man.") If chief executive Ben Chase and his father, vice-president Mike Chase, really want CableLink to be perceived as one big happy family, they oughta come across with some irrelevant detail about themselves, same as everybody else.

Some sites are born with personality; others have personality thrust upon them. The latter is happening at the Revere Group (#57), a consultancy whose site labors under a dance theme that has even less to do with information technology than one might think. The company's strengths are described in terms of dance ("Just as the athletic jitterbugger must first learn basic footwork, effective systems design requires an understanding of technology capabilities and business trends"), and these blurbs are accompanied by illustrations and brief histories of various dance styles. (The Apollo Palace, in Vienna, apparently used to set aside a special room in which pregnant women could waltz.) I applaud Revere's effort to break out of the mold with an unexpected graphic and stylistic conceit. But I find myself paying more attention to how poorly the metaphor works than to how well the company does.

Design Toscano's site has both looks and personality, although that's to be expected. After all, the gargoyles, suits of armor, cherubs, and other historical reproductions that the company (#233) sells make for more impressive visuals than, say, computer cables do. Still, by any standard this is a stunning site. The shimmering water effect that greets visitors (the image is of a couple of stone cherubs resting serenely by a pond) is a major screen-saver opportunity. The home page bears the notice "Warning: Protected by Gargoyles." Since the company is using an unsecured server, its transactions aren't protected by much else.

Respect the Unexpected

The Web sites that really float my boat are those doing unexpected things in who'd-a-thunk-it industries. For example, it's because the corporate-facility-construction business doesn't seem rich with on-line business opportunities that DPR Construction Inc. (#412) gets three huzzahs for the Project Collaboration Center portion of its site. Behind the whimsical "Admit One" icon resides a password-protected area where -- in the very near future -- the company will handle all aspects of project management for the majority of its clients. The idea is to give a project's participants -- customers, architects, engineers, subcontractors, and even licensing agencies -- access to their own segment of the site, where they can pass around drawings, estimates, schedules, and all things related to work flow. Another neat idea: when some problem arises at a construction site ("What's this steel beam doing in the air vent?"), workers can simply post a digital photo to get their question answered. From the looks of it, the company also plans to let sub-contractors bid on-line.

Much as it pains me to use a word like *savvy*, I'm afraid I have to when describing the Web efforts of Jaffe Associates (#411), a marketer for legal and financial firms. Jaffe knows exactly what it's doing, and it does it really well. In addition to a nicely designed gallery of promotional campaigns for clients and a collection of nonobvious marketing tips that's updated religiously, the site offers a free Web and E-mail news service for journalists who want legal commentary on topical issues. There's also a wonderful article by a Jaffe staffer explaining how the company uses on-line newspapers and E-mail to splash its clients' names all over the media whenever a big story breaks. Jaffe clearly knows that there's more to working the Internet than just fielding a Web site. That's what makes it so . . . *savvy*.

Sure, They're Obvious. So What?

Some companies -- particularly those that deal in information -- are simply better positioned than others to exploit an on-line presence. The staffing companies on the *Inc.* 500, for example, are doing a swell job of that and could probably become wholly virtual in time. One of the companies with the best sites, Staffing Edge (#17), offers most of its services interactively, including job and job-candidate hunting via an extensive database that's searchable by both occupation and geography. The company also gives applicants the option of building a resume on-line or pasting in their own, and there's a section of job-related resources (all of them books -- a missed opportunity to provide Web links). I also liked Amicus Legal Staffing's site (#99), which caters to legal types and guides users through the creation of a profession-specific resume. (Ever been disbarred? Amicus demands you fess up.) Key Resources (#319), meanwhile, is doing the push-technology thing -- automatically delivering relevant information to interested users -- with a dynamically generated mailing list for people seeking technical positions. Such services are potentially of very high value to customers, particularly those whose job searches aren't limited by geography.

Software companies ought to be the most usual of usual suspects when it comes to interactivity, so it's disheartening that only a smattering of the *Inc.* 500 sites in this category offer downloadable demos. One site

that does a nice job of it is High Technology Solutions (#44). HTS is happy to let potential customers take its Internet Focus software for a spin, but it would like a little something in return. That something is information, including what kinds of computers and operating systems you have and whether you've ever had reason to limit employee access to the Internet. There are also separate forms for asking questions, reporting bugs, and submitting a "wish list" for future versions. None of this is fancy, but it's a smart way to collect good customer data without ticking anybody off.

Computer distributor Support Net (#54), meanwhile, is eyeing some serious business-to-business opportunities, which, unfortunately, an irritating JavaScript error prevented me from fully appreciating. Affiliates can order products, check backlogs, and review configurations through the site. A feature called Inventory On-Line is essentially a window into the company's warehouse, where users can browse the shelves for items as trivial as modems or as substantial as RS/6000s and get immediate availability updates. There's also a fairly impressive IBM/affiliate database and -- very neat, this -- a lead-management system for tracking prospects and contacts. This is the kind of stuff that makes sites like Dell's and Cisco's swoon-worthy. I only hope Support Net is doing its darnedest to nudge existing customers on-line.

Printers can be flighty creatures, and there are apparently hundreds of people out there anxious to request Laser Pros International's (#88) help in calming them. Not all the posted questions are answered on-site, and it's not clear whether ~~tech support~~ is replying privately or just falling behind. But ~~E-mail links~~ are ~~embedded~~ in each query, making it possible for users to answer one another's questions, the best of all possible worlds. Some kind of search tool or indexer would be useful so users could quickly sort through existing queries before posting a new one, in case their problem has already been addressed.

Real estate is another industry that has been quick to exploit the Web, and T.H. Properties (#7) has clambered aboard the bandwagon with a site that, while not especially interactive, is a good alternative to tootling around Pennsylvania checking out all the company's developments. No one's going to buy a home over the Web -- not yet, anyway -- but T.H. Properties' site gives customers a fair idea of whether they might like to live in Rosecliff Manor and, if so, whether a home in the Montreal, the Sudbury, or the Regina collections might be their cup of tea. Click on the "Communities" icon to find out about the company's developments. Kingscote, for example, priced from the upper \$ 180s, is located in Franconia Township and has trees and rolling meadows. The photos show it full of construction machinery. Click on the "Homes & Floorplans" icon to see what individual models will look like when the construction machinery goes away. Click on "Standard Features" to see what you get (Kohler plumbing fixtures) and on "Customizing Options" to see what you might want (a six-foot Wenco Slider instead of a twin window). Lots of pictures, lots of maps, lots of people wearing tuxedos.

Technical-training companies also are among the clued-in, presumably because their customers spend a chunk of their lives in front of computers. Empower Trainers & Consultants (#47), for example, is smart to offer specials available only over the Web (50% off classes purchased through the site's Technical Training Store). But ARIS Corp. (#214) is even smarter. The company has created an on-line campus for Microsoft certification. Students interact with one another and with their professors via E-mail, bulletin boards, audio and video sessions, and shared applications. There are real-time discussion sessions, class-specific newsgroups, and interactive quizzes and exams.

Applications like the ARIS campus, which is both well conceived and well executed, prompt the question among business owners: Why aren't we doing something like this? If you find yourself asking that question about a site, and you can't come up with an answer, that's the strongest possible evidence of the offering's value and viability.

The Sites

Amicus Legal Staffing: www.amicus-staffing.com

ARIS: www.aris.com

CableLink: www.cablelink.com

Design Toscano: www.aaweb.com/toscano

DPR Construction: www.dprinc.com

Empower Trainers & Consultants: www.empower.com

Enviro-Check: www.envirochk.com
 Fugazy Executive Travel: www.fetus.a.com
 High Technology Solutions: www.htshq.com
 Jaffe Associates: www.jaffemktg.com
 Key Resources: www.keyresources.com
 Laser Pros International: www.laserpros.com
 The Revere Group: www.reveregroup.com
 Select Comfort: www.comfort.com
 Staffing Edge: www.staffingedge.com
 Support Net: www.supnet.com
 T.H. Properties: www.thproperties.com

LOAD-DATE: October 28, 1997

LANGUAGE: ENGLISH

GRAPHIC: Illustrations 1 through 4, no caption, CAROLYN DECILLO >100> >101>

	COMPANY (1996 RANK)	BUSINESS DESCRIPTION	SALES GROWTH		
			1992-96 (% INCREASE)	'96 SALES (\$ 000)	'92 SALES (\$ 000)
1.	Optiva Bellevue, WA (2)	Sells hygiene devices & mfrs. sonic toothbrushes	31,507%	\$ 72,695	\$ 230
2.	Duke & Co. New York, NY (23)	Provides investment-banking, private-placement, & IPO svcs.	17,576	40,831	231
3.	Natural Gas Transmission Services	Dallas, TX Markets & trades natural gas & electricity	13,315	154,943	1,155
4.	Scrip Plus Fresno, CA	Provides funding resources	13,189	116,412	876
5.	Accord Human Resources	Oklahoma City, OK Provides employee-leasing svcs.	8,454	50,128	586
6.	New World Technologies Ashland, MA	Mfrs. computer-based solutions	8,341	27,266	323
7.	TH Properties Franconia, PA	Develops residential property	8,176	20,277	269
8.	Commercial Financial Services	Tulsa, OK (31) Restructures, collects, & resolves bank & FDIC loans	7,858	344,745	4,332
9.	International Profit Associates	Buffalo Grove, IL (8)	7,198	33,934	465

Provides mgmt.-consulting svcs. for small to midsize cos.			
10. PhotoDisc Seattle, WA Publishes digital stock photography on-line & on CD-ROM	7,195	28,231	387
11. Transecon Broomfield, CO (34) Distr. metaphysical & environmental prods.	7,144	14,487	200
12. Paradigm Health Concord, CA Provides specialty managed-care svcs.	7,058	39,080	546
13. Nantucket Allserve Cambridge, MA (13) Develops, sells, & markets Nantucket Nectars juice prods.	6,363	24,493	379
14. PC Club Industry, CA Sells & svcs. computers	6,347	32,816	509
15. Evolutionary Technologies International Austin, TX (17) Provides software tools for data conversion & migration	6,089	17,205	278
16. Hoveround Sarasota, FL Mfrs. & distr. power- mobility devices	5,567	15,698	277
17. Staffing Edge Des Moines, IA Provides temporary- staffing svcs.	5,501	14,786	264
18. Agro Power Development East Brunswick, NJ (71) Develops, produces, & markets produce	5,445	11,090	200
19. Tyan Computer Milpitas, CA Develops, mfrs., & sells systs. boards	5,318	19,124	353
20. Unifi Communications Lowell, MA Provides messaging networks & fax-delivery svcs.	5,209	25,218	475
21. NetScout Systems Chelmsford, MA	4,796%	\$ 30,648	\$ 626

22.	Mfrs. network instrumentation & mgmt. software Mainline Information Systems Tallahassee, FL (19) Provides technological prods. & svcs.	4,766	18,879	388
23.	Gearon & Co. Atlanta, GA Provides consulting svcs. for telecom. industry	4,660	22,324	469
24.	United Services Associates Birmingham, AL Provides custodial svcs.	4,564	13,340	286
25.	PixelVision Acton, MA Mfrs. flat-panel monitors & electronics	4,472	18,198	398
26.	Hospitality Systems Boca Raton, FL Mfrs. touch-screen point-of-sale systs. for restaurants & hotels	4,427	9,100	201
27.	Automatic Answer San Juan Capistrano, CA (39) Provides voice-processing svcs.	4,367	10,275	230
28.	Rigid Structures Houston, TX Mfrs. preengineered metal buildings	4,333	15,914	359
29.	RPM Consulting Columbia, MD Provides internetworking & network-mgmt. consulting svcs.	4,198	8,639	201
30.	Triton Systems Long Beach, MS Mfrs. ATM machines	4,190	40,968	955
31.	Cybertech International Oak Brook, IL Provides software-consulting svcs., systs. integration, & prods.	3,994	10,111	247
32.	Aerobotics Industries Euless, TX (83) Provides engineering, manufacturing,	3,872	12,990	327

33.	Advanced Information Systems Group Longwood, FL Provides systs.-integration svcs.	3,869	16,035	404
34.	Westt Menlo Park, CA Provides electromechanical-technology consulting svcs.	3,851	9,799	248
35.	DSET Bridgewater, NJ Distr. software-engineering tools	3,839	13,117	333
36.	Greenpages Kittery, ME Resells computers	3,712	48,609	1,275
37.	HR Alternatives Kingsport, TN Provides temporary-staffing svcs.	3,614	8,357	225
38.	SBA Boca Raton, FL (100) Provides site-development svcs. for wireless-telecom. industry	3,569	60,276	1,643
39.	Compunnel Software Group Iselin, NJ Offers software development & consulting svcs.	3,363	8,693	251
40.	Mabis Healthcare Lake Forest, IL Distr. wholesale medical prods.	3,349	13,039	378
41.	Insync Systems Milpitas, CA (53) Mfrs. gas-control systs. for semiconductor equip.	3,161	90,370	2,771
42.	Wyncorn Lexington, KY (33) Provides educational & professional-development svcs.	3,154	41,548	1,277
43.	VSI Group Columbia, MD Provides staffing & contract-labor svcs.	3,129	9,590	297
44.	High Technology Solutions San Diego, CA Provides systs.-integration svcs.	3,115	23,695	737
45.	UP Herndon, VA Creates interactive-learning systs.	3,103	6,502	203

46.	Houston Associates Silver Spring, MD (7) Provides communications, telecom., & sysys.-engineering svcs.	3,082	22,371	703
47.	Empower Trainers & Consultants Overland Park, KS Provides computer consulting & training svcs.	3,060	6,541	207
48.	Foreside Co. Gorham, ME Distr. home prods.	3,018	11,007	353
49.	Adrian Industrial Constructors Mont Belvieu, TX Provides construction & fabrication svcs. for petrochemical industry	2,888	6,275	210
50.	Nature's Choice Lyndhurst, NJ Provides vegetative-waste-composting svcs.	2,804	6,301	217
51.	Unitel McLean, VA Provides telemarketing svcs.	2,795	7,962	275
52.	Bay State Computers Lanham, MD Offers computer-related information-mgmt. svcs. & sells hardware	2,784	18,657	647
53.	City Federal Funding & Mortgage College Park, MD Provides mortgage-banking svcs.	2,783	12,050	418
54.	Support Net Indianapolis, IN Provides computer-distr. svcs.	2,782	140,245	4,866
55.	Transaction Information Systems New York, NY (103) Provides software & consulting svcs.	2,766	32,526	1,135
56.	Technical Solutions Troy, MI Provides computer hardware,	2,697%	\$ 11,075	\$ 396

	software, & systs.- integration svcs.			
57.	Revere Group Northbrook, IL Provides business & technology consulting svcs.	2,696	18,423	659
58.	Berkshire Computer Products Hopkinton, MA (138) Provides systs. integration svcs.	2,644	29,414	1,072
59.	Republic Group Anaheim, CA Leases & finances equip.	2,611	5,584	206
60.	Hartex Property Group Dallas, TX (15) Acquires & manages multifamily residential real estate	2,572	28,649	1,072
61.	SQL Financials Atlanta, GA Provides finan. svcs.	2,540	13,200	500
62.	Dynamic Data Solutions Minneapolis, MN Provides computer consulting & training & software- development svcs.	2,525	13,336	508
63.	Financial Independence Network Boscobel, WI (295) Publishes & direct-markets finan.- information prods.	2,502	23,469	902
64.	Systel Bethesda, MD (37) Provides information- systs. svcs.	2,488	29,456	1,138
65.	Force 3 Crofton, MD Sells computers to government	2,481	72,019	2,790
66.	MediaTel San Francisco, CA Provides electronic-document- delivery svcs.	2,474	14,567	566
67.	Crystal Group Hiawatha, IA Mfrs. industrial rack-mount	2,451	10,483	411

	personal computers			
68.	RMR Industries Watertown, SD Mfrs. store fixtures, panelized walls, & interior millwork	2,427	12,233	484
69.	CAP Ventures Norwell, MA Offers consulting svcs. for electronic- imaging industry	2,398	6,071	243
70.	Hi Tech Consultants Southfield, MI Provides computer consulting & contract- programming svcs.	2,392	6,305	253
71.	SCI (Spearman Construction) Bossier City, LA Designs & builds food- industry projects	2,372	16,757	678
72.	Optical Technology Group Bethesda, MD Provides software- development svcs.	2,365	8,479	344
73.	Protocol Interface San Rafael, CA Provides internetworking training svcs.	2,346	10,543	431
74.	Solutions Consulting Canonsburg, PA Provides systs.-integration consulting svcs.	2,343	15,735	644
75.	Capricorn Systems Atlanta, GA Provides computer-software consulting	2,324	19,049	786
76.	Serviceware Oakmont, PA Sells prepackaged knowledge bases	2,276	5,037	212
77.	Equipe Technologies Sunnyvale, CA (9) Mfrs. robots used in prod. of computer chips	2,228	34,988	1,503
78.	Dentrix Dental Systems American Fork, UT (78) Develops clinical & practical	2,222	10,355	446

79.	mgmt. systs. Universal Fabric Structures Quakertown, PA Mfrs. portable fabric structures	2,184	16,902	740
80.	i Market Waltham, MA Develops & distr. target- marketing software	2,136	11,963	535
81.	Caelum Research Silver Spring, MD Provides information-technology & applied-science svcs.	2,128	11,361	510
82.	Select Comfort Minneapolis, MN (6) Mfrs. & markets air sleep systs.	2,121	98,699	4,444
83.	Global Management Systems Bethesda, MD Provides integration-systs. consulting svcs.	2,103	17,334	787
84.	MedicaLogic Beaverton, OR (161) Develops & distr. electronic- medical-record software	2,096	9,664	440
85.	PC Ware Long Island City, NY Sells computers	2,086	24,238	1,109
86.	Progressive System Technologies Austin, TX (163) Supplies automation & contamination-control equip.	2,081	16,704	766
87.	Microsystems Technology Tampa, FL Mfrs. data-entry-automation solutions	2,055	5,775	268
88.	Laser Pros International Oregon, WI Sells & svcs. laser printers	2,051	6,734	313
89.	R. j. Gordon & Co. Los Angeles, CA (129) Provides business-consulting svcs. for merchants & banks	2,026	30,701	1,444
90.	Sabinsa Piscataway, NJ (77) Mfrs. & distr. electronic devices	2,015	14,697	695
91.	Market Scan Information	1,977%	\$ 5,213	\$ 251

	Systems Westlake Village, CA Leases software to automobile industry			
92.	New England Computer Resources Providence, RI Integrates microcomputer technologies for institutions	1,955	7,254	353
93.	Cabot Marsh Bethlehem, PA Offers health-care consulting svcs.	1,947	5,321	260
94.	Mitchell Gold Taylorsville, NC Mfrs. furniture	1,938	11,250	552
95.	KRA Silver Spring, MD (101) Provides policy evaluation & research svcs. to government	1,923	16,791	830
96.	M-Cubed Information Systems Rockville, MD Provides systs.-integration svcs.	1,919	4,907	243
97.	International Software Solutions Herndon, VA Provides software consulting & systs.-administration svcs.	1,917	4,963	246
98.	CableLink Salt Lake City, UT Sells computer cables	1,917	4,115	204
99.	Amicus Legal Staffing Nashville, TN Provides legal staffing	1,910	4,845	241
100.	CSI Digital Seattle, WA Provides systs.-integration- mgmt. svcs.	1,909	23,520	1,171
101.	Network Personnel Wilmington, DE (143) Provides executive-recruitment & temporary-staffing svcs.	1,900	11,700	585
102.	WorkRite Ergonomics Novato, CA Mfrs. ergonomic furniture & accessories	1,892	5,359	269
103.	KSM Associates Yardley, PA Provides information-technology	1,875	4,028	204

	consulting & software development			
104.	SR Hoeft Direct St. Louis, MO Provides direct-response acquisitions & loyalty programs	1,810	8,498	445
105.	DB Design Group Milpitas, CA Mfrs. semiconductor test equip.	1,794	4,090	216
106.	DMS Direct Marketing Services Scottsdale, AZ Provides telecom. svcs.	15,733 1,773	840	
107.	National Safety Alliance Nashville, TN Provides substance-abuse testing programs for workplace	1,773	7,210	385
108.	Balboa Capital Irvine, CA Provides high-tech-equip. leasing & financing	1,747	50,833	2,752
109.	Paranet Houston, TX (63) Provides mgmt. & computer-network-support svcs.	1,746	66,225	3,587
110.	Supercircuits Leander, TX Sells microcameras & equip.	1,736	6,004	327
111.	CritiCom Lanham, MD (181) Provides turnkey videoconferencing & telecom. svcs.	1,723	7,239	397
112.	Ford, Cicchetti & Co. San Jose, CA Provides finan.-systs. svcs.	1,699	3,760	209
113.	Cirque Salt Lake City, UT (481) Mfrs. GlidePoint prods.	1,691	11,586	647
114.	ID Technology Fort Worth, TX Provides labeling, coding & marketing svcs.	1,682	6,273	352
115.	Celtic Leasing Irvine, CA Leases general-business equip.	1,677	39,140	2,203
116.	Excell Data Bellevue, WA	1,674	24,164	1,362

	Provides computer consulting, software-development, & network svcs.			
117.	TeleKey Atlanta, GA Sells prepaid calling cards	1,668	3,871	219
118.	Oxford Associates Bethesda, MD Measures & improves sales & marketing performance	1,657	5,992	341
119.	Concentrix Rochester, NY Provides communications svcs.	1,643	6,520	374
120.	R&D Data Productions Princeton, NJ Resells computers & accessories	1,613	6,183	361
121.	Space Electronics San Diego, CA Designs, mfrs., & sells microelectronic components for space flight	1,607	10,598	621
122.	InstallShield Schaumburg, IL Creates & distr. software- development tools	1,599	10,229	602
123.	Jones Business Systems Houston, TX Provides systs.-integration/ distribution svcs.	1,589	26,181	1,550
124.	TCI Press Seekonk, MA Provides commercial- printing svcs.	1,588	8,591	509
125.	EnviroMetrics Software New Castle, DE Provides environmental- software solutions	1,586	4,164	247
126.	Computer Sales & Services Columbia, SC Sells & svcs. computers for corporate accounts	1,585%	\$ 6,454	\$ 383
127.	International Postal Consultants Savage, MD Provides international mailing & shipping svcs.	1,577	11,803	704
128.	Unitek Fremont, CA Provides computer consulting svcs.	1,568	4,154	249

129.	Century Personnel Overland Park, KS (195) Provides permanent- & temporary-employment svcs.	1,557	12,978	783
130.	CJ's Casino Emporium Las Vegas, NV Sells slot machines & other gaming-related equip.	1,554	8,734	528
131.	Misty Mate Tempe, AZ Mfrs. & distr. outdoor-cooling mist systs.	1,549	3,545	215
132.	Zachary Software Clearwater, FL Markets software-development tools	1,534	5,639	345
133.	Good Catalog Portland, OR Sells mail-order prods.	1,531	20,516	1,258
134.	Western New York Contract Staffing Svcs. Williamsville, NY Provides professional-staffing svcs.	1,528	8,871	545
135.	Indusa Technical Wheaton, IL (123) Provides software consulting svcs.	1,527	10,102	621
136.	Spencer Reed Group Overland Park, KS (54) Provides executive-search & specialty-staffing svcs.	1,520	15,566	961
137.	CompuWorks Pittsfield, MA (212) Provides computer networking, training, & support	1,517	3,251	201
138.	Syngy Bala Cynwyd, PA Provides mgmt. consulting & information svcs.	1,496	3,480	218
139.	New Wave Technologies Gaithersburg, MD Distr. document-imaging & mass-storage solutions	1,496	13,473	844
140.	Bristol Technology Ridgefield, CT Develops cross-platform applications	1,479	8,085	512
141.	EMG Hunt Valley, MD (122)	1,476	15,599	990

	Provides real estate due-diligence engineering svcs.			
142.	Aeronex San Diego, CA Mfrs. high-purity fluid-delivery systs.	1,459	4,678	300
143.	Raymond Karsan Associates Wayne, PA (229) Provides human-resources svcs.	1,450	27,882	1,799
144.	Staff Administrators Denver, CO Provides employment svcs.	1,449	77,976	5,035
145.	Encore Orthopedics Austin, TX (398) Designs, mfrs., & distr. orthopedic implants	1,443	17,621	1,142
146.	P2 Holdings San Leandro, CA Provides rapid-prototyping svcs.	1,442	18,803	1,219
147.	Management Decisions Norcross, GA Provides employment svcs. for computer industry	1,430	9,560	625
148.	Millennium Computer Rochester, NY (347) Develops imaging, graphics, & client/server software	1,428	8,051	527
149.	GA Sullivan St. Louis, MO Provides software-development svcs.	1,410	5,285	350
150.	McNeil Technologies Springfield, VA Provides mgmt.-support svcs.	1,408	3,800	252
151.	Metasys Charlotte, NC Mfrs. transportation-mgmt. software	1,404	6,619	440
152.	Command Technologies Warrenton, VA (119) Provides systs.-engineering svcs.	1,400	11,384	759
153.	Maintech Philadelphia, PA	1,398	6,950	464

	Distr. & mfrs. automation equip.			
154.	GoldMine Software Pacific Palisades, CA Sells contract-mgmt. software	1,387	11,968	805
155.	Protek Electronics Sarasota, FL (81) Mfrs. contracts & designs electronics	1,371	9,119	620
156.	Advanced Solutions International Alexandria, VA Develops & markets business software	1,367	4,561	311
157.	ClariNet Communications San Jose, CA Provides Internet news svcs.	1,366	3,914	267
158.	DAP Mueller & Associates Visalia, CA Provides temporary- staffing svcs.	1,356	5,999	412
159.	Security Leasing Partners St. Louis, MO Provides finan. svcs. for life- safety-equip. dealers	1,355	3,551	244
160.	Software Information Systems Lexington, KY Provides computer-software consulting svcs.	1,353	7,438	512
161.	Heartland Mortgage/Home Finance Naperville, IL Provides mortgage- brokerage svcs.	1,346%	\$ 10,396	\$ 719
162.	JJ Wild Canton, MA Provides consulting & networking svcs., hardware, & periph. systs.	1,343	22,234	1,541
163.	Association Communications Seattle, WA (89) Provides long-distance &	1,342	6,415	445

	data-communications svcs.			
164.	Rumarson Technologies Kenilworth, NJ Sells computer hardware	1,341	10,676	741
165.	Remtech Services Newport News, VA Sells & svcs. computer systs.	1,340	8,194	569
166.	TriNet Employer Group San Leandro, CA (79) Provides professional svcs. for employers	1,339	119,994	8,336
167.	Garg Data International Newport Beach, CA Provides computer- integration svcs.	1,335	16,273	1,134
168.	International Data Response Chicago, IL Provides outsourced- telemarketing svcs.	1,335	66,651	4,645
169.	National Integration Services Rochester, NY Mfrs. custom touch- screen displays	1,320	9,375	660
170.	FormMaker Software Atlanta, GA (170) Provides multiplatform document- automation software & svcs.	1,307	20,458	1,454
171.	Austin Innovations Austin, TX (94) Develops & markets technology-based prods.	1,292	8,685	624
172.	Designer Checks Anniston, AL Mfrs. personal & business checks	1,271	34,602	2,523
173.	Linkage Lexington, MA Provides consulting svcs. for organizational development	1,268	11,385	832
174.	Wheat International Commercial Reston, VA Provides telecom. & information-technology svcs.	1,268	6,154	450
175.	Case & Associates General Contractors	1,261	20,474	1,504

	Houston, TX Provides general-contracting svcs. specializing in hotel construction			
176.	McClain Group Richmond, VA Provides general-mgmt. & information-technology consulting svcs.	1,258	3,666	270
177.	Platinum Communications Warren, NJ Distr. new & refurbished telecom./data equip.	1,258	5,824	429
178.	Quest Consulting Oak Brook, IL Provides Oracle consulting svcs.	1,253	3,274	242
179.	Nexgen SI Irvine, CA (134) Provides network- transition svcs.	1,246	15,719	1,168
180.	Chase Plastic Services Clarkston, MI Distr. thermoplastics	1,235	16,840	1,261
181.	Manhattan Associates Atlanta, GA (164) Supplies warehouse-mgmt. systs. for retail & grocery suppliers	1,229	13,702	1,031
182.	Neverdahl-Loft & Associates Lincoln, NE (120) Provides software support for insurance companies	1,226	5,515	416
183.	Black Cat Computer Wholesale Amherst, NY Distr. computer components & custom-built computer systs.	1,222	5,487	415
184.	Microplastics St. Charles, IL (208) Mfrs. custom injection- molding prods.	1,215	6,906	525
185.	National Network Services Denver, CO Designs, installs, & svcs. data,	1,215	7,009	533

186.	Systems Solutions Group San Francisco, CA Provides systs.-development svcs.	1,201	4,683	360
187.	Paige's Security Services Marina, CA (141) Provides private-security-guard svcs.	1,198	17,307	1,333
188.	Signal Fairfax, VA (394) Provides information, engineering, mgmt., & multimedia svcs.	1,196	54,472	4,202
189.	Stellar Materials Northville, MI Mfrs. refractories & concrete	1,195	2,836	219
190.	BLW King of Prussia, PA Provides sales, installation, & service of electronic security prods.	1,189	3,983	309
191.	Ultimate Software Group Ft. Lauderdale, FL Develops human- resources-mgmt. software	1,188	6,621	514
192.	Superior Electronics Group Sarasota, FL (20) Mfrs. testing equip. & software for cable TV & telephone companies	1,188	33,174	2,576
193.	Core Technology Group Los Gatos, CA Provides information- systs. consulting	1,185	20,892	1,626
194.	Dine-a-Mate Binghamton, NY (204) Provides dining, travel, & recreation coupon programs	1,184	13,249	1,032
195.	Success Development International Jacksonville, FL (152) Produces real estate & finan.-training prods. & conferences	1,182	7,347	573
196.	Radio Spirits Schaumburg, IL (278)	1,180%	\$ 4,339	\$ 339

	Produces & distr. cassettes of old-time radio shows			
197.	Leslie Contracting Fayetteville, GA (186) Provides general- contracting svcs.	1,176	43,318	3,395
198.	Floppy Copy Salt Lake City, UT Packages computer software	1,169	11,697	922
199.	Transaction Billing Resources Hazlet, NJ (203) Provides bank- & credit- card authorization & collection svcs.	1,168	3,436	271
200.	Productive Data Systems Englewood, CO Provides information-resource svcs.	1,163	33,235	2,632
201.	Moeller Design & Development Seattle, WA Mfrs. prototypes	1,158	3,672	292
202.	Electronic Systems of Richmond Richmond, VA Provides systs.-integration svcs. & Internet solutions	1,148	21,496	1,722
203.	Schwartz Communications Waltham, MA (308) Offers high-tech PR svcs.	1,145	6,100	490
204.	Campbell Software Chicago, IL (211) Provides workforce-mgmt. software	1,144	11,854	953
205.	Cellular Warehouse Dublin, CA Sells cellular, paging, home-security, & satellite-TV svcs.	1,143	16,066	1,293
206.	Majestic Systems Integration Brentwood, TN Provides computer consulting svcs.	1,142	2,547	205
207.	Fawcette Technical Publications Palo	1,140	15,900	1,282

	Alto, CA (96) Provides information on Windows & Internet tools			
208.	Consumer Health Network Piscataway, NJ (111) Provides managed- health-care svcs.	1,137	7,892	638
209.	Global Services Tulsa, OK Provides computer hardware, software, & network svcs.	1,136	3,337	270
210.	FNX Ltd. Wayne, PA (287) Develops, mfrs., & sells risk-mgmt. software	1,134	11,266	913
211.	Adams Golf Plano, TX Designs & mfrs. golf clubs	1,127	3,522	287
212.	Animatics Santa Clara, CA Designs & mfrs. motion-control devices	1,124	2,546	208
213.	Indiana Custom Trucks LaGrange, IN Mfrs. custom sleepers for semi-trucks	1,124	5,030	411
214.	ARIS Seattle, WA (261) Provides technical training & project consulting	1,121	26,898	2,203
215.	Innovative Telecom Nashua, NH Provides telecom. svcs.	1,118	12,026	987
216.	New Horizons Computer Learning Center Beaverton, OR (237) Provides computer- application & technical- support training	1,118	4,702	386
217.	Excel Hyannis, MA (190) Mfrs. programmable switches for telecom.	1,114	62,049	5,111
218.	College & University Computers Williamsburg, VA Mfrs. & sells personal computers	1,110	4,781	395
219.	Imagetec Buffalo Grove, IL	1,110	8,396	694

220.	Provides office-prods. sales & svcs. CSSI - Computer Support Services Irving, TX Provides computer-outsourcing svcs.	1,109	9,574	792
221.	IntellAgent Control Dallas, TX Develops software for groupware, Internet, & corporate intranets	1,105	5,002	415
222.	EET Knoxville, TN Provides environmental, health, safety, & technology svcs.	1,101	4,601	383
223.	Sensors Unlimited Princeton, NJ Provides compound semiconductor-technology svcs.	1,098	3,343	279
224.	Trillium Digital Systems Los Angeles, CA Develops & markets portable integrated-communications software	1,097	11,499	961
225.	Pegnato & Pegnato Roof Management Marina del Rey, CA Provides facility repair & maintenance svcs.	1,087	6,124	516
226.	Actium Conshohocken, PA Provides client/server integration svcs.	1,086	49,192	4,146
227.	PB Albuquerque, NM Provides computer- networking svcs.	1,084	7,579	640
228.	Eclipse Marketing Provo, UT Sells residential pest control	1,083	5,535	468
229.	Wynne Systems Long Beach, CA Sells software to rental- service industries	1,082	4,883	413
230.	Class Travel International Redondo Beach, CA	1,081	3,178	269

	Coordinates international events & related travel svcs.			
231.	Modemica Los Angeles, CA Mfrs., designs, & sells furniture	1,080%	\$ 2,950	\$ 250
232.	Physicians Formulary International Phoenix, AZ Sells pharmaceutical & medical prods. wholesale	1,077	7,142	607
233.	Design Toscano Arlington Heights, IL (58) Sells historical European reproductions for homes & gardens	1,076	11,034	938
234.	Imagecom Arlington Heights, IL Provides systs.-integration svcs.	1,075	4,454	379
235.	Sullivan Advertising Cincinnati, OH (179) Provides direct-response advertising svcs.	1,071	6,641	567
236.	Quality Research Huntsville, AL (52) Develops high-tech information & weapons systs.	1,065	11,200	961
237.	Accent Systems Nicholasville, KY Provides systs.- integration svcs.	1,063	7,697	662
238.	Command Software Systems Jupiter, FL Develops & publishes security & antivirus software	1,062	8,625	742
239.	Staffing Services of Michigan Clinton Township, MI Provides temporary-staffing svcs.	1,062	4,286	369
240.	Computer Free America Springfield, OH (245) Mfrs. computers & provides Internet telecom. svcs.	1,060	5,045	435

241.	Hall Kinion & Associates San Jose, CA (107) Provides high-tech staffing svcs.	1,060	50,571	4,361
242.	Share Group West Somerville, MA (433) Provides telemarketing svcs.	1,051	16,061	1,395
243.	Vantage Technology Effingham, IL Rents medical lasers to hospitals	1,050	2,703	235
244.	Coastal Telephone Houston, TX Provides long-distance svc.	1,049	43,262	3,766
245.	UniDirect Scotts Valley, CA (22) Distr. & markets UNIX & World Wide Web software	1,047	28,166	2,455
246.	Lenny & Vinny's Tampa, FL Owns & manages chains of pizzerias & bakeries	1,044	3,971	347
247.	Miller Audio/Video Rossville, GA Provides audio- & videotape-duplication svcs.	1,044	3,227	282
248.	Syncro Development Langhorne, PA (173) Provides PC software- development svcs.	1,042	5,891	516
249.	BDS Business Center Glastonbury, CT Develops software applications	1,040	8,343	732
250.	Chesapeake Center Springfield, VA Provides health-care svcs.	1,035	10,682	941
251.	Bregman & Co. Bethesda, MD (353) Provides environmental consulting	1,033	2,980	263
252.	Cecchetti Sebastiani Cellar Sonoma, CA Produces & sells wine	1,030	2,679	237
253.	Kali's SportNaturals Berkeley, CA Produces, markets, & distr. Clif Bar	1,006	10,939	989
254.	Friends Assisting Seniors & Families	1,002	2,756	248

255.	AMC Computer New York, NY Provides systs. integration, network-design, & turnkey projects	1,000	34,939	3,176
256.	Applied PC Systems West Springfield, MA Offers systs.-integration, application-development, & training svcs.	1,000	3,497	318
257.	Database Marketing Santa Ana, CA Provides direct-mail advertising svcs.	999	4,836	440
258.	PulseCard Overland Park, KS Provides credit-card-financing svcs. for health care	998	3,853	351
259.	Kramer Lead Marketing Group Dallas, TX Provides lists & direct-mail svcs.	996	2,203	201
260.	Alpha Employment Franklin Park, IL Provides temporary-employment svcs. for manufacturing industry	987	3,043	280
261.	Hi Per Sports Colorado Springs, CO Supplies off-road motorcycle accessories	986	2,422	223
262.	AEM San Diego, CA Mfrs. electronic components, materials, & equip.	985	4,751	438
263.	American Fluid Technologies Hopkins, MN Distr. reverse-osmosis-related prods. & svcs.	982	2,738	253
264.	Chip Express Santa Clara, CA (135) Mfrs. ASIC semiconductors	979	28,631	2,654
265.	Central Pharmacy Services Atlanta, GA Distr. nuclear medicine to health-care facilities	975	17,955	1,670
266.	Qualix Group San Mateo, CA	975%	\$ 16,535	\$ 1,538

267.	Develops software solutions Mendez Grand Junction, CO Provides general-contracting svcs.	972	15,114	1,410
268.	Enviro-Check Orlando, FL Provides water-conservation & submetering svcs.	972	3,558	332
269.	Capitol Hill Software Lanham, MD Develops, markets, & supports PC-based software for public affairs	971	2,227	208
270.	Integrated Information Systems Tempe, AZ Provides Internet & client/server software & systs.-integration svcs.	968	2,200	206
271.	Laser Tek Industries Richmond, IL (48) Remanufactures laser, fax, & printer cartridges	967	11,135	1,044
272.	Technology Advancements Playa Del Rey, CA Provides aerospace-engineering svcs.	963	4,953	466
273.	Telegroup Fairfield, IA (151) Provides domestic & international long-distance svcs.	962	213,208	20,070
274.	Choice Solutions Colleyville, TX (41) Provides systs.-integration svcs.	957	10,690	1,011
275.	Betek Manufacturing San Jose, CA Offers turnkey electronic-manufacturing svcs.	953	17,806	1,675
276.	E Source Boulder, CO Provides energy-efficiency & information svcs.	952	3,525	335
277.	Movies & Games 4 Sale Irving, TX Distr. used videocassettes & video games	951	23,948	2,279

278.	SouthStar Steel Charlotte, NC (84) Imports & distr. stainless-steel bars	949	69,400	6,616
279.	RJE International Irvine, CA Distr. underwater- navigation prods.	948	2,683	256
280.	International Data Products Gaithersburg, MD (258) Provides PCs, notebooks, & software to government	945	87,776	8,398
281.	Peacock Alley Dallas, TX Mfrs. luxury bed & bath linens	943	9,546	915
282.	JWA Security Services Sacramento, CA (486) Provides security-guard, investigation, & alarm svcs.	943	10,053	964
283.	Corridor Group Overland Park, KS (264) Provides health-care consulting svcs.	940	4,265	410
284.	Riester Phoenix, AZ Provides advertising & PR svcs.	940	9,587	922
285.	Intrinsix Westborough, MA Provides electrical-engineering consulting svcs. & designs circuits	939	10,267	988
286.	Merit Distributing Bothell, WA Mfrs. PCs & provides network svcs.	934	21,551	2,085
287.	Quick Solutions Columbus, OH Provides computer consulting svcs.	934	7,090	686
288.	Concepts in Communications Pittsburgh, PA Provides telecom. & tracking systs. for health-care industry	933	3,006	291
289.	Advanced Mobile	926	69,087	6,733

	Solutions Moraga, CA Designs & mfrs. cellular- phone accessories			
290.	Create-a-Check Salt Lake City, UT Mfrs. & sells check-writing software & supplies	924	2,663	260
291.	CNC Sales & Applications North Royalton, OH Sells & svcs. machining centers	920	15,327	1,502
292.	Research Triangle Consultants Cary, NC Sells electronic-commerce software & provides consulting svcs.	918	2,057	202
293.	Omicron Systems Philadelphia, PA Distr. computer equip. & software	916	3,669	361
294.	Taj Technologies Minneapolis, MN Provides custom-software development	914	3,834	378
295.	Univenture Columbus, OH (223) Mfrs. compact-disc-packaging & -storage prods.	912	17,212	1,700
296.	Dreyfuss Hunt Boston, MA Publishes health- & finan.- mgmt. newsletters	912	2,905	287
297.	E-Tek Dynamics San Jose, CA (137) Mfrs. fiber-optic & communication devices & components	910	40,915	4,051
298.	Quality Imaging Products Levine, CA Remanufactures cartridges for laser printers & copiers	910	2,060	204
299.	Magic Solutions Paramus, NJ (238) Provides help-desk software technology	909	29,289	2,902
300.	Parrot Ice Drink Products of America Houston, TX (184) Mfrs. fruit beverages & dispensers	908	15,579	1,545

301.	Intelecon Services Dallas, TX Provides audiovisual event- staging, production, & equip. sales & svcs.	907%	\$ 8,042	\$ 799
302.	Camber Huntsville, AL (87) Builds flight simulators & provides engineering svcs.	904	53,649	5,345
303.	Boxlight Poulsbo, WA (246) Distr. presentation & projection equip.	902	42,270	4,218
304.	Linksys Group Irvine, CA Provides networking solutions	901	21,529	2,151
305.	PC Wholesale San Antonio, TX Sells personal computers	897	11,952	1,199
306.	Eichrom Industries Darien, IL Mfrs. chemicals that remove metals from liquids	894	5,238	527
307.	Advanced Modular Power Systems Ann Arbor, MI Mfrs. electrical-power systs.	892	2,787	281
308.	Preferred Technology San Francisco, CA (193) Provides stock- execution svcs.	892	21,121	2,130
309.	NCI Information Systems McLean, VA (73) Provides telecom. & information-technology svcs.	891	52,303	5,278
310.	Microbar Sunnyvale, CA Mfrs. cabinets for chemical mgmt.	891	17,762	1,793
311.	Hoover's Austin, TX (361) Creates & publishes company information on-line & in print	888	3,960	401
312.	Sophisticated Systems Columbus, OH (113) Provides computer consulting & resells hardware	887	12,049	1,221

	& software			
313.	Precision Bilt Spokane, WA Provides commercial & industrial contracting svcs.	886	4,871	494
314.	Goldhil Home Media Thousand Oaks, CA Provides videotape production & distr. svcs.	881	6,609	674
315.	Marketvision/Gateway Cincinnati, OH Provides market-research svcs.	880	2,255	230
316.	Independent Capital Management Irvine, CA (307) Provides finan. svcs.	877	4,193	429
317.	Accelerated Technology Mobile, AL Develops & mfrs. operating- systs. software	877	2,871	294
318.	Armstrong Data Services Vienna, VA Offers professional, engineering, & technical svcs.	874	21,508	2,209
319.	Key Resources San Francisco, CA Provides staffing svcs.	873	11,399	1,171
320.	Business Response Creve Coeur, MO (194) Provides telephone & computer svcs.	871	9,589	988
321.	Oneida Sales & Services Buffalo, NY (488) Mfrs. & sells concrete & fencing prods.	867	7,085	733
322.	SolutionsIQ Bellevue, WA (382) Provides business-software prods. & svcs.	866	16,848	1,744
323.	Subsystem Technologies	866	5,069	525

	Rosslyn, VA Provides systs.-integration svcs.			
324.	Network Plus Quincy, MA (121) Provides long-distance telephone svcs.	864	75,135	7,794
325.	Albany Molecular Research Albany, NY Provides pharmaceutical research & manufacturing svcs.	863	6,261	650
326.	Realogic Cleveland, OH Provides advanced technology & systs.-integration consulting	863	14,840	1,541
327.	Excel Management Systems Columbus, OH Provides computer consulting svcs.	862	11,236	1,168
328.	Statprobe Ann Arbor, MI Provides health-care- research svcs.	861	8,883	924
329.	AccuData America Cape Coral, FL (216) Distr. marketing databases	861	6,120	637
330.	Executive Staffing Services of Columbia Columbia, SC Provides temporary-employment svcs.	858	1,974	206
331.	Dippin' Dots Paducah, KY (171) Mfrs. novelty ice-cream prods.	857	11,702	1,223
332.	Arizona Gazebos Phoenix, AZ Mfrs. & sells gazebos	854	2,348	246
333.	Power Source Distributors Burns, TN (167) Mfrs. & distr. health-food supplements	854	4,428	464
334.	Locus Direct Marketing	851	7,009	737

335.	Group Redlands, CA Provides direct-mail & database-marketing svcs.	850	2,300	242
336.	Forn Services Downers Grove, IL Imports & designs clothing	849%	\$ 5,923	\$ 624
337.	Premier Technologies Long Lake, MN Mfrs. high-tech digital-announcement devices	848	5,537	584
338.	Island Automated Medical Services St. Petersburg, FL Provides medical-billing svcs.	844	20,492	2,171
339.	Somero Enterprises Jaffrey, NH (270) Mfrs. & markets construction equip.	843	4,103	435
340.	Ensemble Dallas, TX Provides computer consulting svcs.	840	27,918	2,970
341.	Fugazy Executive Travel Boston, MA Provides corporate-travel-mgmt. svcs.	833	25,739	2,760
342.	Donjr Concrete Construction Lewisville, TX Provides concrete-construction svcs.	830	5,403	581
343.	Miramar Systems Santa Barbara, CA Mfrs. PCs	826	7,356	794
344.	Polybutylene Specialties Spring, TX Provides general-contracting svcs.	826	8,457	913
345.	ECI Conference Call Services Wayne, NJ Provides worldwide audio teleconferencing	824	1,858	201
	Spinecare Brooklyn, NY Provides health-care svcs.			

346.	Lloyd Lamont Design Herndon, VA Provides architectural- design svcs.	822	10,830	1,174
347.	Tier Technologies Walnut Creek, CA Provides application- development svcs. for Fortune 500 companies	808	16,102	1,774
348.	Hi-Tech Electronic Sign Clearwater, FL Sells LED displays for advertising & communications companies	807	5,633	621
349.	Let's Talk Cellular of America Miami, FL (326) Sells cellular phones, communications equip., & accessories	801	13,593	1,508
350.	Citipost New York, NY (132) Operates overnight-delivery svcs.	798	8,067	898
351.	YMLA Los Angeles, CA Mfrs. men's clothing	791	12,926	1,451
352.	Staffworks Milwaukee, WI Provides staffing svcs.	787	11,119	1,254
353.	Advanced Practical Thinking Training Des Moines, IA Conducts training sessions & sells training-related materials	785	3,000	339
354.	BindView Development Houston, TX Develops network-systs.- mgmt. software	780	11,002	1,250
355.	American Leather Dallas, TX Mfrs. custom leather- upholstered furniture	767	9,554	1,102
356.	Computer Parts	767	11,728	1,353

	Unlimited Moorpark, CA (32)			
357.	Resells computer parts & equip. Universal Systems & Technology Fairfax, VA (59)	766	21,560	2,489
358.	Provides information-technology & simulation svcs. Tech Prose Walnut Creek, CA	766	4,166	481
359.	Provides technical- writing svcs. Delta Corporate Services Parsippany, NJ (16)	766	16,482	1,904
360.	Provides information-technology consulting svcs. S3LTD Virginia Beach, VA	765	10,385	1,200
361.	Provides contracting svcs. for government Red & Blue Auto Rental San Diego, CA	763	2,270	263
362.	Provides car-rental svcs. Quality Data Systems Bloomington, MN	759	3,178	370
363.	Provides information-technology consulting svcs. Integram Fairfax, VA	757	6,170	720
364.	Provides business-to-customer communication svcs. United Audio Visuals Muskego, WI	756	1,865	218
365.	Rents audio & visual equip. Nanonics Phoenix, AZ	755	3,353	392
366.	Sells nanominiature electronic connectors Syncro Vac Elgin, TX	753	27,022	3,169
367.	Mfrs. high-vacuum components RSI Hollywood, FL (309)	751	5,353	629
	Provides employee-background- screening svcs.			

368.	Bottomline Technologies Portsmouth, NH (149) Develops & sells disbursement software & training svcs.	750	18,067	2,125
369.	New Concepts Santa Clara, CA Repairs internal subassemblies for notebook computers	750	2,482	292
370.	Matrix Resources Atlanta, GA Provides information-systs. placement svcs.	749	60,098	7,078
371.	Teams Tempe, AZ Provides assessment svcs. for businesses	748%	\$ 3,442	\$ 406
372.	Ultimate Software Consultants Lombard, IL Provides software consulting svcs.	747	9,741	1,150
373.	DPS Fresno, CA Designs, mfrs., & sells alarm & control systems for phone companies	745	4,747	562
374.	GI Apparel Farmingdale, NJ (405) Mfrs. & sells imprinted sportswear	743	11,683	1,386
375.	FGM Herndon, VA Develops computer software & integrates computer svts.	741	6,113	727
376.	Professional Exhibits & Graphics Sunnyvale, CA Mfrs. trade-show graphics	741	6,607	786
377.	LaserCare Los Angeles, CA Mfrs. laser printers & supplies	739	1,845	220
378.	Interface Data Systems Phoenix, AZ Mfrs. electronic-control devices	738	6,747	805
379.	Atlantic Realty Cos. Vienna, VA	735	3,440	412

380.	Provides real estate development, planning, & consulting svcs. Communications Products Indianapolis, IN Provides network/telecom.- integration systs.	730	16,118	1,942
381.	Barber Martin & Associates Richmond, VA (364) Provides advertising, marketing, & PR svcs.	730	38,169	4,601
382.	General Shelters of Texas, S.B. Center, TX (299) Develops building structures & cooling systs.	729	8,559	1,032
383.	Rochester Software Associates Rochester, NY Mfrs. digital-document-production software	726	4,008	485
384.	Austin Tanner Garrett Tallahassee, FL (365) Provides computerized voice & fax svcs.	725	5,331	646
385.	Envirotech Services Enid, OK Provides civil-engineering & environmental consulting svcs.	724	1,780	216
386.	Alphatech Arlington, VA Provides computer consulting svcs.	723	5,318	646
387.	Atlantic Search Group Cary, NC (271) Provides technical consulting for pharmaceutical & other industries	720	6,531	796
388.	Custom Transportation Service Braintree, MA	719	4,292	524

	Provides transportation & limousine svcs.			
389.	Delta Group Albuquerque, NM Mfrs. cables, wire harnesses, & electromechanical assemblies	711	5,606	691
390.	CD Smith Drug St. Joseph, MO Provides wholesale pharmaceutical distr. svcs.	710	301,523	37,221
391.	Davis Cos. Marlborough, MA (183) Provides temporary-employee & mgmt. svcs.	709	30,940	3,824
392.	Computer Aided Service Los Altos, CA Provides software & diagnostic equip. for automotive svcs.	708	15,046	1,861
393.	Hoff & Associates Ann Arbor, MI Provides product-design & engineering svcs.	708	2,732	338
394.	World Wide Technology St. Louis, MO Provides systs.-integration svcs.	706	81,582	10,119
395.	Ex Officio Seattle, WA (169) Designs, imports, & distr. adventure-travel apparel	703	6,937	864
396.	Dazel Austin, TX Mfrs. mgmt. software	701	8,828	1,102
397.	ACS Systems & Engineering Virginia Beach, VA (109) Provides systs.-integration, installation, & engineering-design svcs.	694	8,228	1,036
398.	Radiant Systems	694	6,590	830

	Raleigh, NC Mfrs. heating equip. for engines			
399.	Hamlin, Power & Reaves Springfield, IL Provides automotive-marketing & training svcs. & sells used cars	693	30,362	3,827
400.	Warm Springs Machining Waynesboro, PA Mfrs. & distr. hydraulic- dump prods.	692	7,619	962
401.	National Computer Resource Wichita, KS Sells new & used computer equip. & periph.	691	8,024	1,014
402.	Logical Solution Lenexa, KS Sells computers	691	10,239	1,294
403.	Triggiano Enterprises Phoenix, AZ Mfrs. construction- paper prods.	691	9,281	1,173
404.	NIE International Phoenix, AZ (423) Distr. computer systs. & parts	690	25,243	3,196
405.	Solid Concepts Valencia, CA Provides rapid-prototyping & manufacturing svcs.	690	4,154	526
406.	Born Information Services Group Wayzata, MN (178) Provides information- syst. consulting svcs.	686%	\$ 35,604	\$ 4,528
407.	Continuus Software Irvine, CA (191) Provides client/server change & configuration	686	16,099	2,049

	mgmt.			
408.	Analytical Graphics King of Prussia, PA Provides software and satellite analysis tools for aerospace industry	685	6,962	887
409.	InfiNet Systems Turlock, CA Provides systs. & network-integration svcs.	684	2,978	380
410.	Micro Interactive New York, NY Develops interactive multimedia software	683	3,310	423
411.	Jaffe Associates Washington, DC Provides marketing, mgmt., & communication svcs.	682	3,510	449
412.	DPR Construction Redwood City, CA (370) Provides general-construction contracting svcs.	681	619,557	79,294
413.	Triad Data New York, NY Provides technology consulting svcs.	680	35,392	4,537
414.	Infotech Enterprises Alexandria, VA Provides software-development & geographic-information- systs. svcs.	680	2,059	264
415.	Landmark Financial Services Dallas, TX Provides residential- mortgage svcs.	678	4,689	603
416.	Sun Time Enterprises Clearwater, FL Mfrs. licensed sports watches	678	7,783	1,001
417.	Key Environmental Services Cedarburg, WI	678	2,317	298

418.	Provides environmental & geotechnical engineering & consulting svcs. Madison Research Huntsville, AL Provides engineering & information-technology svcs.	677	9,701	1,249
419.	Concrete Technology Largo, FL Mfrs. decorative concrete coatings	676	4,780	616
420.	Monitronics International Dallas, TX Provides residential & commercial security svcs.	675	6,033	778
421.	M Squared San Francisco, CA Provides interim-mgmt. svcs.	675	7,011	905
422.	Midwest Datacomm Downers Grove, IL Provides svcs. for local area networks & voice & data cabling	673	4,048	524
423.	Mass. Bay Brewing Boston, MA (476) Brews & distr. malt beverages	671	11,369	1,475
424.	Rich, Florin/Solutions Marlborough, MA Provides compensation consulting svcs.	668	2,579	336
425.	OC Arlington, VA Provides engineering & training svcs.	666	25,659	3,349
426.	Paradysz Matera & Co. New York, NY Provides direct-marketing svcs.	666	9,006	1,176
427.	Sharpe Capital	663	12,366	1,620

	New York, NY Provides securities svcs.			
428.	Stevens Professional Staffing New York, NY Provides temporary- staffing svcs.	662	2,638	346
429.	Interlink Communication Systems Clearwater, FL (242) Provides computer-network- integration svcs.	661	18,470	2,428
430.	Micro Modeling Associates New York, NY Provides computer consulting svcs.	657	15,636	2,066
431.	Cost Management Systems Vienna, VA (254) Provides information-systs. & consulting svcs.	652	12,834	1,707
432.	Granite Properties Dallas, TX Provides commercial real estate investment svcs.	650	36,896	4,919
433.	New Media Cleveland, OH (222) Provides information- technology svcs.	650	8,660	1,155
434.	Key Temporaries Atlanta, GA (366) Provides temporary- employment svcs.	649	6,300	841
435.	Ringmasters Ogden, UT (431) Designs & distr. corporate, public-safety, & religious prods.	648	2,288	306
436.	JJ Grace Van Nuys, CA Provides newspaper-advertising outsourcing & graphic-design svcs.	645	2,792	375
437.	Triad Technology Group Portland, OR Provides staffing & recruiting svcs. for information-	643	2,005	270

438.	technology firms ChemPro Spartanburg, SC (61) Mfrs. & markets consumer & industrial cleaners	641	9,624	1,299
439.	Logistics Management Memphis, TN Repairs & refurbishes electronic equip.	641	22,427	3,028
440.	Pinnacle Group Athens, AL (236) Designs, develops, & implements software & information solutions	638	24,120	3,270
441.	Indoff St. Louis, MO Distr. & supplies storage equip. & furniture	637%	\$ 50,889	\$ 6,902
442.	Emerald Resources North Syracuse, NY Provides medical distr. svcs. for nursing homes & hospitals	637	3,222	437
443.	Construction Coordinators Needham, MA Designs & constructs commercial projects	637	4,605	625
444.	United States Information Systems Nyack, NY Provides telecom. svcs.	635	13,294	1,809
445.	DeBari Associates New York, NY Provides litigation-support & document-imaging svcs.	635	2,087	284
446.	Systems Integration Solutions San Francisco, CA Provides consulting, information-technology, & contracting svcs.	634	29,156	3,973
447.	BGB South San Francisco, CA Mfrs. trade-show exhibits	632	2,312	316
448.	NetPro Computing Scottsdale, AZ (213) Develops, publishes, & markets network-utility software	629	7,009	961
449.	RapidPak Appleton, WI Mfrs. food-packaging equip.	628	3,747	515
450.	Plitt Co. Chicago, IL Distr. wholesale seafood prods.	627	10,765	1,480

451.	CIBT McLean, VA (219) Provides travel & visa svcs.	627	9,746	1,340
452.	Dataworks Denver, CO (302) Publishes mgmt. logbooks for hospitality industry	627	3,401	468
453.	Bertech Industries Torrance, CA (342) Distr. electronic tools & supplies	625	3,190	440
454.	Maslow Media Group Arlington, VA Provides staffing svcs. for video & film industry	625	4,174	576
455.	Eclipse Consulting Noblesville, IN Provides computer consulting svcs.	620	2,649	368
456.	Russ Thomas Construction Cincinnati, OH Provides commercial- construction svcs.	617	14,446	2,014
457.	GeoAccess Overland Park, KS (356) Provides software & consulting svcs. for managed-health-care industry	616	9,708	1,356
458.	Noble-Met Salem, VA (418) Mfrs. metal microtubing	614	8,084	1,132
459.	Bell Oaks Atlanta, GA Offers executive-search svcs.	613	2,568	360
460.	CAP Engineering Consultants Coral Gables, FL (162) Provides engineering consulting svcs.	612	5,744	807
461.	Maxim Computer Systems Fremont, CA Sells & svcs. high-performance enterprise LANs	612	7,785	1,094
462.	Environmental & Occupational Risk Mgmt. San Jose, CA (215) Provides environmental-safety consulting & engineering svcs.	610	6,594	929
463.	Liberty Bidco Investment Farmington Hills, MI Invests in small businesses through debt or equity position	608	2,944	416
464.	Triumph Technologies	607	15,196	2,149

465.	Burlington, MA (249) Provides computer-network-integration & -engineering svcs.	605	11,594	1,644
466.	Staffing Consultants Chicago, IL (296) Provides temporary-staffing svcs.	604	5,032	715
467.	Architectural Specialties Trading Pensacola, FL Mfrs. commercial architectural woodwork	602	5,557	792
468.	Recore Arlington, TX Supplies wholesale automotive parts	601	8,276	1,181
469.	Embedded Support Tools Canton, MA Develops & mfrs. embedded systs.-development tools	601	17,757	2,534
470.	Metro Technologies Manassas, VA Sells computer & data-communications equip.	598	2,986	428
471.	Party Land Plymouth Meeting, PA Franchises retail party-supply stores	597	2,706	388
472.	Retail Systems International Chula Vista, CA Mfrs. bar-code equip.	597	31,767	4,560
473.	Enterprise Networking Systems Redwood City, CA Provides systs.-integration svcs.	595	2,676	385
474.	ShapsGroup Los Altos, CA (482) Provides accounts-payable-recovery svcs.	595	20,594	2,963
475.	Policy Studies Denver, CO Provides mgmt. consulting & information-technology svcs.	595	7,448	1,072
476.	Aspen Temporary Services Takoma Park, MD (438) Provides temporary-help svcs.	594%	\$ 3,450	\$ 497
477.	ABCOW Services San Diego, CA Provides temporary-employment svcs.	589	2,475	359

	New Haven, CT Offers general-contracting & mgmt. svcs.			
478.	Entact Irving, TX Provides environmental consulting & remediation svcs.	588	13,093	1,902
479.	Optical Laser Huntington Beach, CA (205) Distr. optical technology	586	19,797	2,885
480.	Ascher Group Roseland, NJ Provides staffing svcs.	584	3,840	561
481.	Freeman Associates Wellesley, MA Provides media-marketing svcs. for print, on-line, & trade-show planning	584	2,557	374
482.	Novtek San Jose, CA (445) Mfrs. test equip. for flash- memory prods.	582	9,056	1,327
483.	Power Devices Laguna Hills, CA Sells thermal-mgmt. materials	579	2,765	407
484.	Dove Data Products Florence, SC Mfrs. & recycles computer- printer supplies	577	3,061	452
485.	ABC Technologies Beaverton, OR Develops software & svcs. for activity-based mgmt.	576	10,134	1,499
486.	Magellan's International Travel Santa Barbara, CA (349) Publishes mail-order catalogs	576	4,847	717
487.	Planned Systems International Columbia, MD Provides systs.-integration svcs.	576	9,356	1,385
488.	Computer Networks Pleasanton, CA Provides systs.-integration svcs.	574	4,304	639
489.	Lancast Nashua, NH Develops & mfrs. data- communications equip.	574	15,060	2,236
490.	Bolder Heuristics Boulder, CO Develops high-tech software & provides consulting svcs.	573	6,096	906
491.	Valcom Middleton, WI	573	42,859	6,371

492.	Provides PC-technology solutions TeleMark Portland, OR (292) Provides telemarketing svcs.	571	29,480	4,396
493.	Working Assets Funding Service San Francisco, CA (42) Provides donation-linked long-distance telephone svcs.	569	104,418	15,611
494.	American Incorporators/Registered Agents Wilmington, DE Provides incorporating svcs.	568	1,789	268
495.	Harrington Group Orlando, FL Develops & sells software for quality-assurance industry	567	1,508	226
496.	System One Technical Tampa, FL Provides solutions for information technology & telecom. companies	563	46,237	6,971
497.	HCI Technologies Reston, VA (259) Provides telecom. & information-systs. consulting svcs.	563	9,567	1,443
498.	Original American Scones Oak Park, IL (452) Mfrs. fresh & frozen baked goods	563	10,534	1,590
499.	Empire Graphics New York, NY Provides commercial-printing svcs.	562	4,947	747
500.	Telogy Networks Germantown, MD Mfrs. software-based telecom. systs. & prods.	559	10,807	1,639

1.	COMPANY (1996 RANK) BUSINESS DESCRIPTION	PROFIT RANGE *		NO. OF EMPLOYEES		DATE FOUNDED
		'96	'92	'96	'92	
1.	Optiva Bellevue, WA (2) Sells hygiene devices & mfrs. sonic toothbrushes	F	C	338	25	1988
2.	Duke & Co. New York, NY (23) Provides investment-banking, private-placement, & IPO svcs.	B	F	363	51	1979
3.	Natural Gas Transmission Services Dallas, TX Markets & trades natural gas & electricity	D	D	20	3	1992

4.	Scrip Plus Fresno, CA Provides funding resources	F	C	90	3	1991
5.	Accord Human Resources Oklahoma City, OK Provides employee-leasing svcs.	F	F	40	8	1992
6.	New World Technologies Ashland, MA Mfrs. computer-based solutions	E	E	78	5	1991
7.	TH Properties Franconia, PA Develops residential property	C	D	25	0	1992
8.	Commercial Financial Services Tulsa, OK (31) Restructures, collects, & resolves bank & FDIC loans	A	A	1,266	45	1986
9.	International Profit Associates Buffalo Grove, IL (8) Provides mgmt.-consulting svcs. for small to midsize cos.	C	F	576	82	1991
10.	PhotoDisc Seattle, WA Publishes digital stock photography on-line & on CD-ROM	C	F	157	4	1991
11.	Transecon Broomfield, CO (34) Distr. metaphysical & environmental prods.	D	D	86	2	1989
12.	Paradigm Health Concord, CA Provides specialty managed-care svcs.	D	F	130	20	1991
13.	Nantucket Allserve Cambridge, MA (13) Develops, sells, & markets Nantucket Nectars juice prods.	D	F	85	6	1990
14.	PC Club Industry, CA Sells & svcs. computers	D	D	105	10	1991
15.	Evolutionary Technologies International Austin, TX (17) Provides software tools for data conversion & migration	D	F	148	30	1991
16.	Hoveround Sarasota, FL	A	F	64	11	1992

17.	Mfrs. & distr. power-mobility devices Staffing Edge Des Moines, IA Provides temporary-staffing svcs.	C	F	105	4	1992
18.	Agro Power Development East Brunswick, NJ (71) Develops, produces, & markets produce	C	F	284	4	1989
19.	Tyan Computer Milpitas, CA Develops, mfrs., & sells systs. boards	C	F	34	7	1989
20.	Unifi Communications Lowell, MA Provides messaging networks & fax-delivery svcs.	F	F	653	45	1990
21.	NetScout Systems Chelmsford, MA Mfrs. network instrumentation & mgmt. software	A	D	114	17	1984
22.	Mainline Information Systems Tallahassee, FL (19) Provides technological prods. & svcs.	D	D	65	8	1989
23.	Gearon & Co. Atlanta, GA Provides consulting svcs. for telecom. industry	A	A	175	7	1991
24.	United Services Associates Birmingham, AL Provides custodial svcs.	D	E	344	235	1971
25.	PixelVision Acton, MA Mfrs. flat-panel monitors & electronics	F	C	65	5	1991
26.	Hospitality Systems Boca Raton, FL Mfrs. touch-screen point-of-sale systs. for restaurants & hotels	F	F	100	6	1992
27.	Automatic Answer San Juan Capistrano, CA (39) Provides voice-processing svcs.	E	F	42	4	1988
28.	Rigid Structures Houston, TX Mfrs. preengineered metal buildings	D	A	85	2	1990

29.	RPM Consulting Columbia, MD Provides internetworking & network-mgmt. consulting svcs.	A	A	98	6	1992
30.	Triton Systems Long Beach, MS Mfrs. ATM machines	A	F	91	13	1979
31.	Cybertech International Oak Brook, IL Provides software-consulting svcs., systs. integration, & prods.	C	D	124	2	1990
32.	Aerobotics Industries Euless, TX (83) Provides engineering, manufacturing, tooling, & prototyping svcs.	A	F	100	12	1989
33.	Advanced Information Systems Group Longwood, FL Provides systs.-integration svcs.	D	D	41	7	1991
34.	Westt Menlo Park, CA Provides electromechanical-technology consulting svcs.	C	F	51	7	1989
35.	DSET Bridgewater, NJ Distr. software-engineering tools	B	A	90	6	1989
36.	Greenpages Kittery, ME Resells computers	E	F	99	15	1992
37.	HR Alternatives Kingsport, TN Provides temporary-staffing svcs.	C	E	22	2	1992
38.	SBA Boca Raton, FL (100) Provides site-development svcs. for wireless-telecom. industry	D	B	365	11	1989
39.	Compunnel Software Group Iselin, NJ Offers software development & consulting svcs.	D	E	125	27	1989
40.	Mabis Healthcare Lake Forest, IL Distr. wholesale medical prods.	D	F	22	7	1992
41.	Insync Systems Milpitas, CA (53)	F	D	300	24	1989

	Mfrs. gas-control systs. for semiconductor equip.					
42.	Wyncor Lexington, KY (33) Provides educational & professional-development svcs.	D	A	100	12	1986
43.	VSI Group Columbia, MD Provides staffing & contract-labor svcs.	B	F	550	180	1990
44.	High Technology Solutions San Diego, CA Provides systs.-integration svcs.	D	C	278	20	1990
45.	UP Herndon, VA Creates interactive-learning systs.	C	F	51	3	1992
46.	Houston Associates Silver Spring, MD (7) Provides communications, telecom., & systs.-engineering svcs.	D	F	250	12	1982
47.	Empower Trainers & Consultants Overland Park, KS Provides computer consulting & training svcs.	F	D	85	6	1990
48.	Foreside Co. Gorham, ME Distr. home prods.	C	F	131	2	1990
49.	Adrian Industrial Constructors Mont Belvieu, TX Provides construction & fabrication svcs. for petrochemical industry	F	E	100	6	1992
50.	Nature's Choice Lyndhurst, NJ Provides vegetative-waste-composting svcs.	D	D	45	2	1991
51.	Unitel McLean, VA Provides telemarketing svcs.	C	A	550	9	1991
52.	Bay State Computers Lanham, MD Offers computer-related	D	D	30	3	1988

	information-mgmt. svcs. & sells hardware					
53.	City Federal Funding & Mortgage College Park, MD Provides mortgage-banking svcs.	B	B	124	12	1992
54.	Support Net Indianapolis, IN Provides computer-distr. svcs.	C	D	141	32	1982
55.	Transaction Information Systems New York, NY (103) Provides software & consulting svcs.	C	C	280	24	1992
56.	Technical Solutions Troy, MI Provides computer hardware, software, & systs.- integration svcs.	D	D	17	2	1992
57.	Revere Group Northbrook, IL Provides business & technology consulting svcs.	B	C	195	28	1991
58.	Berkshire Computer Products Hopkinton, MA (138) Provides systs. integration svcs.	D	D	27	5	1988
59.	Republic Group Anaheim, CA Leases & finances equip.	A	D	81	3	1992
60.	Hartex Property Group Dallas, TX (15) Acquires & manages multifamily residential real estate	A	A	135	6	1991
61.	SQL Financials Atlanta, GA Provides finan. svcs.	F	F	180	10	1991
62.	Dynamic Data Solutions Minneapolis, MN Provides computer consulting & training & software- development svcs.	A	A	150	4	1987
63.	Financial Independence	B	F	79	2	1987

	Network Boscobel, WI (295) Publishes & direct-markets finan.- information prods.					
64.	Sytel Bethesda, MD (37) Provides information- systs. svcs.	D	B	250	26	1987
65.	Force 3 Crofton, MD Sells computers to government	D	F	72	5	1991
66.	MediaTel San Francisco, CA Provides electronic-document- delivery svcs.	D	F	64	3	1989
67.	Crystal Group Hiawatha, IA Mfrs. industrial rack-mount personal computers	A	A	31	4	1991
68.	RMR Industries Watertown, SD Mfrs. store fixtures, panelized walls, & interior millwork	D	F	106	23	1992
69.	CAP Ventures Norwell, MA Offers consulting svcs. for electronic- imaging industry	D	D	38	6	1991
70.	Hi Tech Consultants Southfield, MI Provides computer consulting & contract- programming svcs.	B	D	110	20	1990
71.	SCI (Spearman Construction) Bossier City, LA Designs & builds food- industry projects	D	F	30	3	1992
72.	Optical Technology Group Bethesda, MD Provides software- development svcs.	A	A	50	10	1992
73.	Protocol Interface San Rafael, CA Provides internetworking training svcs.	A	A	52	3	1990
74.	Solutions Consulting Canonsburg, PA	A	A	100	5	1992

75.	Provides systs.-integration consulting svcs. Capricorn Systems Atlanta, GA	D	C	275	27	1991
76.	Provides computer-software consulting Serviceware Oakmont, PA	F	D	80	2	1991
77.	Sells prepackaged knowledge bases Equipe Technologies Sunnyvale, CA (9)	A	A	100	12	1990
78.	Mfrs. robots used in prod. of computer chips Dentrix Dental Systems American Fork, UT (78)	A	F	76	16	1985
79.	Develops clinical & practical mgmt. systs. Universal Fabric Structures Quakertown, PA	D	F	30	2	1992
80.	Mfrs. portable fabric structures i Market Waltham, MA	F	F	65	12	1991
81.	Develops & distr. target-marketing software Caelum Research Silver Spring, MD	D	F	110	12	1987
82.	Provides information-technology & applied-science svcs. Select Comfort Minneapolis, MN (6)	F	F	751	0	1987
83.	Mfrs. & markets air sleep systs. Global Management Systems Bethesda, MD	A	A	149	7	1988
84.	Provides integration-systs. consulting svcs. MedicaLogic Beaverton, OR (161)	F	F	143	4	1985
85.	Develops & distr. electronic-medical-record software PC Ware Long Island City, NY	D	F	22	10	1990
86.	Sells computers Progressive System Technologies Austin, TX (163)	E	D	112	7	1991

87.	Supplies automation & contamination-control equip.				
87.	Microsystems Technology Tampa, FL Mfrs. data-entry-automation solutions	A	F	28	5 1989
88.	Laser Pros International Oregon, WI Sells & svcs. laser printers	A	A	55	4 1990
89.	R. j. Gordon & Co. Los Angeles, CA (129) Provides business-consulting svcs. for merchants & banks	A	A	104	38 1987
90.	Sabinsa Piscataway, NJ (77) Mfrs. & distr. electronic devices	C	C	30	0 1983
91.	Market Scan Information Systems Westlake Village, CA Leases software to automobile industry	A	D	30	3 1988
92.	New England Computer Resources Providence, RI Integrates microcomputer technologies for institutions	A	A	15	4 1991
93.	Cabot Marsh Bethlehem, PA Offers health-care consulting svcs.	C	F	74	3 1991
94.	Mitchell Gold Taylorsville, NC Mfrs. furniture	D	D	103	7 1989
95.	KRA Silver Spring, MD (101) Provides policy evaluation & research svcs. to government	C	D	250	65 1981
96.	M-Cubed Information Systems Rockville, MD Provides svsts.-integration svcs.	F	F	50	5 1985
97.	International Software Solutions Herndon, VA Provides software consulting & svsts.-administration svcs.	C	B	75	8 1992
98.	CableLink Salt Lake City, UT Sells computer cables	C	E	22	5 1992

99.	Amicus Legal Staffing Nashville, TN Provides legal staffing	B	F	35	2	1991
100.	CSI Digital Seattle, WA Provides systs.-integration- mgmt. svcs.	F	D	55	15	1991
101.	Network Personnel Wilmington, DE (143) Provides executive-recruitment & temporary-staffing svcs.	F	F	44	10	1990
102.	WorkRite Ergonomics Novato, CA Mfrs. ergonomic furniture & accessories	B	D	40	4	1991
103.	KSM Associates Yardley, PA Provides information-technology consulting & software development	A	C	45	2	1990
104.	SR Hoeft Direct St. Louis, MO Provides direct-response acquisitions & loyalty programs	B	F	29	3	1991
105.	DB Design Group Milpitas, CA Mfrs. semiconductor test equip.	D	C	36	2	1989
106.	DMS Direct Marketing Services Scottsdale, AZ Provides telecom. svcs.	D	D	1,000	100	1991
107.	National Safety Alliance Nashville, TN Provides substance-abuse testing programs for workplace	D	F	65	12	1988
108.	Balboa Capital Irvine, CA Provides high-tech-equip. leasing & financing	D	C	108	25	1988
109.	Paranet Houston, TX (63) Provides mgmt. & computer- network-support svcs.	B	B	818	50	1990
110.	Supercircuits Leander, TX Sells microcameras	B	A	6	2	1989

111.	CritiCom Lanham, MD (181) Provides turnkey videoconferencing & telecom. svcs.	D	D	23	9	1990
112.	Ford, Cicoletti & Co. San Jose, CA Provides finan.-systs. svcs.	C	B	33	2	1991
113.	Cirque Salt Lake City, UT (481) Mfrs. GlidePoint prods.	D	D	67	6	1991
114.	ID Technology Fort Worth, TX Provides labeling, coding & marketing svcs.	D	F	35	3	1989
115.	Celtic Leasing Irvine, CA Leases general-business equip.	D	D	19	3	1991
116.	Excell Data Bellevue, WA Provides computer consulting, software-development, & network svcs.	D	F	320	35	1991
117.	TeleKey Atlanta, GA Sells prepaid calling cards	F	F	18	3	1991
118.	Oxford Associates Bethesda, MD Measures & improves sales & marketing performance	A	A	40	4	1991
119.	Concentrix Rochester, NY Provides communications svcs.	F	F	70	8	1991
120.	R&D Data Productions Princeton, NJ Resells computers & accessories	D	B	6	1	1991
121.	Space Electronics San Diego, CA Designs, mfrs., & sells microelectronic components for space flight	A	F	75	7	1992
122.	InstallShield Schaumburg, IL Creates & distr. software-development tools	F	F	93	7	1987
123.	Jones Business Systems Houston, TX Provides systs.-integration/distribution svcs.	D	F	120	20	1991
124.	TCI Press Seekonk, MA Provides commercial-	B	C	50	9	1989

	printing svcs.					
125.	EnviroMetrics Software New Castle, DE Provides environmental- software solutions	C	D	35	3	1992
126.	Computer Sales & Services Columbia, SC Sells & svcs. computers for corporate accounts	D	F	23	4	1992
127.	International Postal Consultants Savage, MD Provides international mailing & shipping svcs.	A	C	36	6	1991
128.	Unitek Fremont, CA Provides computer consulting svcs.	B	A	48	4	1992
129.	Century Personnel Overland Park, KS (195) Provides permanent- & temporary- employment svcs.	B	E	67	10	1974
130.	CJ's Casino Emporium Las Vegas, NV Sells slot machines & other gaming-related equip.	D	C	25	3	1990
131.	Misty Mate Tempe, AZ Mfrs. & distr. outdoor- cooling mist systs.	D	F	40	3	1989
132.	Zachary Software Clearwater, FL Markets software- development tools	F	F	26	6	1991
133.	Good Catalog Portland, OR Sells mail-order prods.	D	F	77	15	1992
134.	Western New York Contract Staffing Svcs. Williamsville, NY Provides professional- staffing svcs.	D	F	500	50	1992
135.	Indusa Technical Wheaton, IL (123) Provides software consulting svcs.	A	E	100	8	1989
136.	Spencer Reed Group Overland Park, KS (54)	C	C	202	30	1990

	Provides executive-search & specialty-staffing svcs.					
137.	CompuWorks Pittsfield, MA (212) Provides computer networking, training, & support	C	B	38	3	1987
138.	Syngy Bala Cynwyd, PA Provides mgmt. consulting & information svcs.	D	C	25	4	1991
139.	New Wave Technologies Gaithersburg, MD Distr. document-imaging & mass-storage solutions	D	F	22	3	1992
140.	Bristol Technology Ridgefield, CT Develops cross-platform applications	A	D	50	6	1991
141.	EMG Hunt Valley, MD (122) Provides real estate due- diligence engineering svcs.	C	D	165	16	1986
142.	Aeronex San Diego, CA Mfrs. high-purity fluid- delivery systs.	D	D	40	4	1990
143.	Raymond Karsan Associates Wayne, PA (229) Provides human-resources svcs.	C	C	178	30	1986
144.	Staff Administrators Denver, CO Provides employment svcs.	F	F	3,397	210	1991
145.	Encore Orthopedics Austin, TX (398) Designs, mfrs., & distr. orthopedic implants	C	F	80	25	1992
146.	P2 Holdings San Leandro, CA Provides rapid-prototyping svcs.	F	B	220	20	1989
147.	Management Decisions Norcross, GA Provides employment svcs. for computer industry	C	F	133	2	1981
148.	Millennium Computer Rochester, NY (347)	A	D	60	4	1985

	Develops imaging, graphics, & client/server software					
149.	GA Sullivan St. Louis, MO Provides software- development svcs.	D	F	76	6	1982
150.	McNeil Technologies Springfield, VA Provides mgmt.-support svcs.	F	F	64	20	1985
151.	Metasynt Charlotte, NC Mfrs. transportation-mgmt. software	D	C	115	3	1991
152.	Command Technologies Warrenton, VA (119) Provides systs.-engineering svcs.	D	F	147	36	1988
153.	Maintech Philadelphia, PA Distr. & mfrs. automation equip.	A	A	13	1	1988
154.	GoldMine Software Pacific Palisades, CA Sells contract-mgmt. software	A	D	80	12	1989
155.	Protek Electronics Sarasota, FL (81) Mfrs. contracts & designs electronics	D	E	134	14	1987
156.	Advanced Solutions International Alexandria, VA Develops & markets business software	D	D	55	7	1991
157.	ClariNet Communications San Jose, CA Provides Internet news svcs.	D	B	37	3	1989
158.	DAP Mueller & Associates Visalia, CA Provides temporary- staffing svcs.	E	B	19	3	1991
159.	Security Leasing Partners	A	B	12	4	1990

160.	St. Louis, MO Provides finan. svcs. for life-safety-equip. dealers	D	D	24	9	1982
	Software Information Systems Lexington, KY Provides computer-software consulting svcs.					
161.	Heartland Mortgage/Home Finance Naperville, IL Provides mortgage-brokerage svcs.	B	B	275	12	1987
162.	JJ Wild Canton, MA Provides consulting & networking svcs., hardware, & periph. systs.	D	F	48	6	1956
163.	Association Communications Seattle, WA (89) Provides long-distance & data-communications svcs.	C	B	15	3	1989
164.	Rumanson Technologies Kenilworth, NJ Sells computer hardware	A	E	55	5	1992
165.	Remtech Services Newport News, VA Sells & svcs. computer systs.	D	E	152	14	1988
166.	TriNet Employer Group San Leandro, CA (79) Provides professional svcs. for employers	F	F	60	6	1988
167.	Garg Data International Newport Beach, CA Provides computer-integration svcs.	C	C	250	7	1991
168.	International Data Response Chicago, IL Provides outsourced-telemarketing svcs.	F	C	2,500	600	1986
169.	National Integration Services Rochester, NY Mfrs. custom touch-screen displays	D	C	30	4	1992
170.	FormMaker Software	F	F	239	34	1983

171.	Austin Innovations Austin, TX (94) Develops & markets technology-based prods.	D	E	50	5	1990
172.	Designer Checks Anniston, AL Mfrs. personal & business checks	D	F	450	50	1992
173.	Linkage Lexington, MA Provides consulting svcs. for organizational development	A	C	58	7	1988
174.	Wheat International Commercial Reston, VA Provides telecom. & information-technology svcs.	B	A	51	5	1989
175.	Case & Associates General Contractors Houston, TX Provides general-contracting svcs. specializing in hotel construction	D	D	60	4	1988
176.	McClain Group Richmond, VA Provides general-mgmt. & information-technology consulting svcs.	A	A	16	3	1992
177.	Platinum Communications Warren, NJ Distr. new & refurbished telecom./data equip.	D	A	17	2	1992
178.	Quest Consulting Oak Brook, IL Provides Oracle consulting svcs.	D	B	11	1	1991
179.	Nexgen SI Irvine, CA (134) Provides network-transition svcs.	C	D	223	20	1990
180.	Chase Plastic Services Clarkston, MI Distr. thermoplastics	D	D	25	3	1992
181.	Manhattan Associates Atlanta, GA (164) Supplies warehouse-mgmt.	A	E	83	11	1990

182.	systs. for retail & grocery suppliers Neverdahl-Loft & Associates Lincoln, NE (120) Provides software support for insurance companies	C	F	63	7	1990
183.	Black Cat Computer Wholesale Amherst, NY Distr. computer components & custom-built computer systs.	C	D	16	1	1992
184.	Microplastics St. Charles, IL (208) Mfrs. custom injection-molding prods.	D	C	76	4	1989
185.	National Network Services Denver, CO Designs, installs, & svcs. data, voice, & video networks	A	B	69	9	1989
186.	Systems Solutions Group San Francisco, CA Provides systs.-development svcs.	A	A	41	4	1990
187.	Paige's Security Services Marina, CA (141) Provides private-security-guard svcs.	C	C	570	200	1987
188.	Signal Fairfax, VA (394) Provides information, engineering, mgmt., & multimedia svcs.	B	D	700	58	1987
189.	Stellar Materials Northville, MI Mfrs. refractories & concrete	E	F	18	8	1990
190.	BLW King of Prussia, PA Provides sales, installation, & service of electronic security prods.	B	D	38	5	1986
191.	Ultimate Software Group Ft. Lauderdale, FL Develops human-resources-mgmt. software	E	E	240	40	1990

192.	Superior Electronics Group Sarasota, FL (20) Mfrs. testing equip. & software for cable TV & telephone companies	D	D	315	12	1977
193.	Core Technology Group Los Gatos, CA Provides information- sys. consulting	D	D	70	15	1985
194.	Dine-a-Mate Binghamton, NY (204) Provides dining, travel, & recreation coupon programs	C	C	121	29	1974
195.	Success Development International Jacksonville, FL (152) Produces real estate & finan.-training prods. & conferences	C	A	42	5	1989
196.	Radio Spirits Schaumburg, IL (278) Produces & distr. cassettes of old-time radio shows	C	B	12	3	1989
197.	Leslie Contracting Fayetteville, GA (186) Provides general- contracting svcs.	C	E	125	15	1990
198.	Floppy Copy Salt Lake City, UT Packages computer software	B	D	28	8	1988
199.	Transaction Billing Resources Hazlet, NJ (203) Provides bank- & credit- card authorization & collection svcs.	A	F	8	4	1985
200.	Productive Data Systems Englewood, CO Provides information-resource svcs.	C	E	500	60	1986
201.	Moeller Design & Development Seattle, WA Mfrs. prototypes	A	B	25	5	1989
202.	Electronic Systems of Richmond Richmond, VA	C	C	17	10	1983

	Provides systs.-integration svcs. & Internet solutions				
203.	Schwartz Communications Waltham, MA (308) Offers high-tech PR svcs.	A	E	81	4
204.	Campbell Software Chicago, IL (211) Provides workforce-mgmt. software	F	F	106	8
205.	Cellular Warehouse Dublin, CA Sells cellular, paging, home-security, & satellite-TV svcs.	D	F	104	10
206.	Majestic Systems Integration Brentwood, TN Provides computer consulting svcs.	D	E	33	5
207.	Fawcette Technical Publications Palo Alto, CA (96) Provides information on Windows & Internet tools	F	F	50	4
208.	Consumer Health Network Piscataway, NJ (111) Provides managed- health-care svcs.	A	F	65	10
209.	Global Services Tulsa, OK Provides computer hardware, software, & network svcs.	F	C	40	1
210.	FNX Ltd. Wayne, PA (287) Develops, mftrs., & sells risk-mgmt. software	B	D	103	14
211.	Adams Golf Plano, TX Designs & mftrs. golf clubs	B	F	50	4
212.	Animatics Santa Clara, CA Designs & mftrs. motion-control devices	B	F	18	3
213.	Indiana Custom Trucks LaGrange, IN Mfrs. custom sleepers	D	F	77	15

	for semi-trucks					
214.	ARIS Seattle, WA (261) Provides technical training & project consulting	C	B	246	20	1990
215.	Innovative Telecom Nashua, NH Provides telecom. svcs.	F	F	140	11	1989
216.	New Horizons Computer Learning Center Beaverton, OR (237) Provides computer- application & technical- support training	B	F	60	9	1980
217.	Excel Hyannis, MA (190) Mfrs. programmable switches for telecom.	B	C	211	20	1988
218.	College & University Computers Williamsburg, VA Mfrs. & sells personal computers	C	D	15	2	1990
219.	Imagetec Buffalo Grove, IL Provides office-prods. sales & svcs.	B	F	65	10	1992
220.	CSSI - Computer Support Services Irving, TX Provides computer-outsourcing svcs.	C	D	185	12	1988
221.	IntellAgent Control Dallas, TX Develops software for groupware, Internet, & corporate intranets	F	F	78	4	1991
222.	EET Knoxville, TN Provides environmental, health, safety, & technology svcs.	D	B	63	4	1990
223.	Sensors Unlimited Princeton, NJ Provides compound semiconductor-technology svcs.	F	F	22	2	1991
224.	Trillium Digital Systems Los Angeles, CA Develops & markets portable integrated-communications	A	F	58	14	1988

	software					
225.	Pegnato & Pegnato Roof Management Marina del Rey, CA Provides facility repair & maintenance svcs.	F	A	80	8	1992
226.	Actium Conshohocken, PA Provides client/server integration svcs.	C	D	316	58	1987
227.	PB Albuquerque, NM Provides computer-networking svcs.	D	F	30	4	1988
228.	Eclipse Marketing Provo, UT Sells residential pest control	A	A	73	6	1991
229.	Wynne Systems Long Beach, CA Sells software to rental-service industries	D	C	24	5	1991
230.	Class Travel International Redondo Beach, CA Coordinates international events & related travel svcs.	F	F	25	4	1990
231.	Modernica Los Angeles, CA Mfrs., designs, & sells furniture	D	D	15	0	1990
232.	Physicians Formulary International Phoenix, AZ Sells pharmaceutical & medical prods. wholesale	C	A	16	3	1990
233.	Design Toscano Arlington Heights, IL (58) Sells historical European reproductions for homes & gardens	D	E	45	5	1989
234.	Imagecom Arlington Heights, IL Provides syssts.-integration svcs.	B	C	16	4	1990
235.	Sullivan Advertising Cincinnati, OH (179) Provides direct-response advertising svcs.	D	D	17	5	1988
236.	Quality Research	D	D	129	14	1988

	Huntsville, AL (52) Develops high-tech information & weapons systs.					
237.	Accent Systems Nicholasville, KY Provides systs.- integration svcs.	C	C	26	8	1988
238.	Command Software Systems Jupiter, FL Develops & publishes security & antivirus software	F	F	87	8	1984
239.	Staffing Services of Michigan Clinton Township, MI Provides temporary-staffing svcs.	D	F	24	6	1992
240.	Computer Free America Springfield, OH (245) Mfrs. computers & provides Internet telecom. svcs.	D	D	42	3	1991
241.	Hall Kinion & Associates San Jose, CA (107) Provides high-tech staffing svcs.	D	F	235	20	1990
242.	Share Group West Somerville, MA (433) Provides telemarketing svcs.	D	A	336	78	1986
243.	Vantage Technology Effingham, IL Rents medical lasers to hospitals	B	D	19	5	1990
244.	Coastal Telephone Houston, TX Provides long-distance svc.	D	F	140	22	1986
245.	UniDirect Scotts Valley, CA (22) Distr. & markets UNIX & World Wide Web software	D	E	85	2	1991
246.	Lenny & Vinny's Tampa, FL Owns & manages chains of pizzerias & bakeries	F	F	80	6	1991
247.	Miller Audio/Video Rossville, GA Provides audio- & videotape-duplication svcs.	D	D	38	4	1984

248.	Syncro Development Langhorne, PA (173) Provides PC software-development svcs.	A	C	46	7	1990
249.	BDS Business Center Glastonbury, CT Develops software applications	A	E	80	18	1985
250.	Chesapeake Center Springfield, VA Provides health-care svcs.	D	D	251	25	1978
251.	Bregman & Co. Bethesda, MD (353) Provides environmental consulting	B	D	46	5	1984
252.	Cecchetti Sebastiani Cellar Sonoma, CA Produces & sells wine	D	F	1	1	1985
253.	Kali's SportNaturals Berkeley, CA Produces, markets, & distr. Clif Bar	C	D	26	3	1986
254.	Friends Assisting Seniors & Families West Palm Beach, FL Provides svcs. for elderly	A	A	14	3	1989
255.	AMC Computer New York, NY Provides systs. integration, network-design, & turnkey projects	B	B	88	9	1984
256.	Applied PC Systems West Springfield, MA Offers systs.-integration, application-development, & training svcs.	A	F	35	11	1989
257.	Database Marketing Santa Ana, CA Provides direct-mail advertising svcs.	B	F	27	5	1992
258.	PulseCard Overland Park, KS Provides credit-card-financing svcs. for health care	F	F	26	4	1988
259.	Kramer Lead Marketing Group Dallas, TX Provides lists & direct-mail svcs.	D	F	8	2	1985
260.	Alpha Employment Franklin Park, IL Provides temporary-employment	C	F	618	57	1962

	svcs. for manufacturing industry				
261.	Hi Per Sports Colorado Springs, CO Supplies off-road motorcycle accessories	C	F	11	3
262.	AEM San Diego, CA Mfrs. electronic components, materials, & equip.	B	D	82	5
263.	American Fluid Technologies Hopkins, MN Distr. reverse-osmosis-related prods. & svcs.	D	E	13	2
264.	Chip Express Santa Clara, CA (135) Mfrs. ASIC semiconductors	D	F	135	38
265.	Central Pharmacy Services Atlanta, GA Distr. nuclear medicine to health-care facilities	F	E	185	12
266.	Qualix Group San Mateo, CA Develops software solutions	C	F	80	30
267.	Mendez Grand Junction, CO Provides general-contracting svcs.	C	D	60	15
268.	Enviro-Check Orlando, FL Provides water-conservation & submetering svcs.	F	C	30	14
269.	Capitol Hill Software Lanham, MD Develops, markets, & supports PC-based software for public affairs	A	B	22	4
270.	Integrated Information Systems Tempe, AZ Provides Internet & client/server software & systs.-integration svcs.	E	F	46	6
271.	Laser Tek Industries Richmond, IL (48) Remanufactures laser, fax, & printer cartridges	D	D	102	15
272.	Technology Advancements Playa Del Rey, CA	D	D	70	10

	Provides aerospace-engineering svcs.					
273.	Telegroup Fairfield, IA (151) Provides domestic & international long-distance svcs.	E	D	346	55	1989
274.	Choice Solutions Colleyville, TX (41) Provides systs.-integration svcs.	D	F	40	15	1991
275.	Betek Manufacturing San Jose, CA Offers turnkey electronic-manufacturing svcs.	A	A	75	21	1985
276.	E Source Boulder, CO Provides energy-efficiency & information svcs.	C	F	24	6	1992
277.	Movies & Games 4 Sale Irving, TX Distr. used videocassettes & video games	A	F	69	21	1988
278.	SouthStar Steel Charlotte, NC (84) Imports & distr. stainless-steel bars	F	D	60	6	1991
279.	RJE International Irvine, CA Distr. underwater-navigation prods.	D	E	6	1	1990
280.	International Data Products Gaithersburg, MD (258) Provides PCs, notebooks, & software to government	E	D	154	33	1984
281.	Peacock Alley Dallas, TX Mfrs. luxury bed & bath linens	D	C	45	15	1973
282.	JWA Security Services Sacramento, CA (486) Provides security-guard, investigation, & alarm svcs.	D	D	525	107	1981
283.	Corridor Group Overland Park, KS (264) Provides health-care consulting svcs.	A	A	15	3	1989

284.	Riester Phoenix, AZ Provides advertising & PR svcs.	D	D	28	10	1989
285.	Intrinsix Westborough, MA Provides electrical-engineering consulting svcs. & designs circuits	D	E	83	14	1985
286.	Merit Distributing Bothell, WA Mfrs. PCs & provides network svcs.	D	D	42	7	1992
287.	Quick Solutions Columbus, OH Provides computer consulting svcs.	C	C	95	20	1991
288.	Concepts in Communications Pittsburgh, PA Provides telecom. & tracking systs. for health-care industry	B	F	22	4	1991
289.	Advanced Mobile Solutions Moraga, CA Designs & mfrs. cellular- phone accessories	A	A	55	16	1985
290.	Create-a-Check Salt Lake City, UT Mfrs. & sells check-writing software & supplies	E	F	29	17	1991
291.	CNC Sales & Applications North Royalton, OH Sells & svcs. machining centers	D	D	39	15	1983
292.	Research Triangle Consultants Cary, NC Sells electronic-commerce software & provides consulting svcs.	D	D	20	3	1991
293.	Omicron Systems Philadelphia, PA Distr. computer equip. & software	D	F	4	1	1989
294.	Taj Technologies Minneapolis, MN Provides custom-software development	D	D	55	6	1987
295.	Univenture Columbus, OH (223) Mfrs. compact-disc-packaging	C	D	111	23	1988

296.	Dreyfuss Hunt Boston, MA Publishes health- & finan.- mgmt. newsletters	B	A	7	1	1987
297.	E-Tek Dynamics San Jose, CA (137) Mfrs. fiber-optic & communication devices & components	A	C	339	46	1983
298.	Quality Imaging Products Levine, CA Remanufactures cartridges for laser printers & copiers	A	A	37	4	1990
299.	Magic Solutions Paramus, NJ (238) Provides help-desk software technology	E	E	235	2	1988
300.	Parrot Ice Drink Products of America Houston, TX (184) Mfrs. fruit beverages & dispensers	A	B	60	13	1986
301.	Intelecon Services Dallas, TX Provides audiovisual event- staging, production, & equip. sales & svcs.	D	A	72	6	1991
302.	Camber Huntsville, AL (87) Builds flight simulators & provides engineering svcs.	D	D	431	56	1985
303.	Boxlight Poulsbo, WA (246) Distr. presentation & projection equip.	D	D	85	9	1985
304.	Linksys Group Irvine, CA Provides networking solutions	A	A	30	8	1988
305.	PC Wholesale San Antonio, TX Sells personal computers	D	D	35	6	1991
306.	Eichrom Industries Darien, IL Mfrs. chemicals that remove metals from liquids	F	F	26	6	1990
307.	Advanced Modular Power Systems Ann Arbor, MI Mfrs. electrical-power systs.	D	D	30	6	1990
308.	Preferred Technology	C	A	110	30	1982

309.	San Francisco, CA (193) Provides stock- execution svcs.	D	C	788	69	1986
310.	NCI Information Systems McLean, VA (73) Provides telecom. & information-technology svcs.	C	F	112	14	1991
311.	Microbar Sunnyvale, CA Mfrs. cabinets for chemical mgmt.	F	F	60	9	1990
312.	Hoover's Austin, TX (361) Creates & publishes company information on-line & in print	D	D	57	2	1990
313.	Sophisticated Systems Columbus, OH (113) Provides computer consulting & resells hardware & software	D	C	10	1	1981
314.	Precision Bilt Spokane, WA Provides commercial & industrial contracting svcs.	C	F	13	4	1991
315.	Goldhil Home Media Thousand Oaks, CA Provides videotape production & distr. svcs.	C	F	32	11	1992
316.	Marketvision/Gateway Cincinnati, OH Provides market-research svcs.	D	D	86	10	1988
317.	Independent Capital Management Irvine, CA (307) Provides finan. svcs.	C	F	36	6	1990
318.	Accelerated Technology Mobile, AL Develops & mfrs. operating- svcs. software	D	F	385	51	1970
	Armstrong Data Services					

	Vienna, VA Offers professional, engineering, & technical svcs.				
319.	Key Resources San Francisco, CA Provides staffing svcs.	D	D	42	18
320.	Business Response Creve Coeur, MO (194) Provides telephone & computer svcs.	D	D	230	12
321.	Oneida Sales & Services Buffalo, NY (488) Mfrs. & sells concrete & fencing prods.	D	E	40	5
322.	SolutionsIQ Bellevue, WA (382) Provides business-software prods. & svcs.	D	F	186	31
323.	Subsystem Technologies Rosslyn, VA Provides systs.-integration svcs.	D	D	50	5
324.	Network Plus Quincy, MA (121) Provides long-distance telephone svcs.	D	D	250	30
325.	Albany Molecular Research Albany, NY Provides pharmaceutical research & manufacturing svcs.	A	A	66	9
326.	Realogic Cleveland, OH Provides advanced technology & systs.-integration consulting	D	D	155	30
327.	Excel Management Systems Columbus, OH Provides computer consulting svcs.	D	D	80	15
328.	Statprobe Ann Arbor, MI Provides health-care-	E	C	191	21

	research svcs.					
329.	AccuData America Cape Coral, FL (216) Distr. marketing databases	C	F	65	8	1990
330.	Executive Staffing Services of Columbia Columbia, SC Provides temporary-employment svcs.	D	D	9	2	1991
331.	Dippin' Dots Paducah, KY (171) Mfrs. novelty ice-cream prods.	C	C	65	30	1987
332.	Arizona Gazebos Phoenix, AZ Mfrs. & sells gazebos	C	B	30	7	1989
333.	Power Source Distributors Burns, TN (167) Mfrs. & distr. health-food supplements	A	C	25	5	1988
334.	Locus Direct Marketing Group Redlands, CA Provides direct-mail & database-marketing svcs.	D	F	23	4	1990
335.	Forn Services Downers Grove, IL Imports & designs clothing	D	F	10	3	1989
336.	Premier Technologies Long Lake, MN Mfrs. high-tech digital- announcement devices	A	C	43	6	1991
337.	Island Automated Medical Services St. Petersburg, FL Provides medical-billing svcs.	D	D	60	3	1992
338.	Somero Enterprises Jaffrey, NH (270) Mfrs. & markets construction equip.	C	F	75	18	1986
339.	Ensemble Dallas, TX Provides computer consulting svcs.	C	B	51	5	1991
340.	Fugazy Executive Travel Boston, MA	D	D	225	50	1973

	Provides corporate-travel-mgmt. svcs.				
341.	Donjr Concrete Construction Lewisville, TX Provides concrete-construction svcs.	D	D	236	13
342.	Miramar Systems Santa Barbara, CA Mfrs. PCs	A	F	27	6
343.	Polybutylene Specialties Spring, TX Provides general-contracting svcs.	D	D	100	2
344.	ECI Conference Call Services Wayne, NJ Provides worldwide audio teleconferencing	D	D	84	16
345.	Spinecare Brooklyn, NY Provides health-care svcs.	A	A	20	0
346.	Lloyd Lamont Design Herndon, VA Provides architectural-design svcs.	D	F	112	6
347.	Tier Technologies Walnut Creek, CA Provides application-development svcs. for Fortune 500 companies	C	D	124	19
348.	Hi-Tech Electronic Sign Clearwater, FL Sells LED displays for advertising & communications companies	D	F	92	10
349.	Let's Talk Cellular of America Miami, FL (326) Sells cellular phones, communications equip., & accessories	E	F	215	0
350.	Citipost New York, NY (132) Operates overnight-delivery svcs.	D	C	192	24

351.	YMLA Los Angeles, CA Mfrs. men's clothing	D	D	60	6	1991
352.	Staffworks Milwaukee, WI Provides staffing svcs.	D	A	40	6	1992
353.	Advanced Practical Thinking Training Des Moines, IA Conducts training sessions & sells training-related materials	B	C	5	1	1991
354.	BindView Development Houston, TX Develops network-syts.- mgmt. software	A	A	79	10	1990
355.	American Leather Dallas, TX Mfrs. custom leather- upholstered furniture	D	F	110	18	1990
356.	Computer Parts Unlimited Moorpark, CA (32) Resells computer parts & equip.	C	C	75	8	1991
357.	Universal Systems & Technology Fairfax, VA (59) Provides information-technology & simulation svcs.	D	B	150	20	1988
358.	Tech Prose Walnut Creek, CA Provides technical- writing svcs.	C	C	12	2	1988
359.	Delta Corporate Services Parsippany, NJ (16) Provides information-technology consulting svcs.	D	E	185	50	1991
360.	S3LTD Virginia Beach, VA Provides contracting svcs. for government	E	F	350	45	1985
361.	Red & Blue Auto Rental San Diego, CA	D	C	18	3	1986

362.	Provides car-rental svcs. Quality Data Systems Bloomington, MN Provides information-technology consulting svcs.	C	A	48	8	1991
363.	Integram Fairfax, VA Provides business-to-customer communication svcs.	B	F	20	7	1992
364.	United Audio Visuals Muskego, WI Rents audio & visual equip.	D	A	10	1	1990
365.	Nanronics Phoenix, AZ Sells nanominiature electronic connectors	B	F	37	10	1988
366.	Syncro Vac Elgin, TX Mfrs. high-vacuum components	B	F	140	30	1982
367.	RSI Hollywood, FL (309) Provides employee-background- screening svcs.	D	F	93	14	1988
368.	Bottomline Technologies Portsmouth, NH (149) Develops & sells disbursement software & training svcs.	C	D	185	40	1989
369.	New Concepts Santa Clara, CA Repairs internal subassemblies for notebook computers	A	C	30	5	1991
370.	Matrix Resources Atlanta, GA Provides information-systs. placement svcs.	B	C	500	100	1983
371.	Teams Tempe, AZ Provides assessment svcs. for businesses	A	F	45	10	1978
372.	Ultimate Software Consultants Lombard, IL Provides software consulting svcs.	C	E	87	12	1988
373.	DPS Fresno, CA Designs, mfrs., & sells alarm & control systems	A	D	32	19	1986

374.	for phone companies GI Apparel Farmingdale, NJ (405) Mfrs. & sells imprinted sportswear	C	D	159	25	1989
375.	FGM Herndon, VA Develops computer software & integrates computer systs.	D	D	64	14	1987
376.	Professional Exhibits & Graphics Sunnyvale, CA Mfrs. trade-show graphics	D	E	40	14	1992
377.	LaserCare Los Angeles, CA Mfrs. laser printers & supplies	D	D	24	10	1986
378.	Interface Data Systems Phoenix, AZ Mfrs. electronic-control devices	D	F	122	35	1991
379.	Atlantic Realty Cos. Vienna, VA Provides real estate development, planning, & consulting svcs.	A	A	21	2	1992
380.	Communications Products Indianapolis, IN Provides network/telecom.- integration systs.	F	D	87	13	1983
381.	Barber Martin & Associates Richmond, VA (364) Provides advertising, marketing, & PR svcs.	D	D	51	22	1988
382.	General Shelters of Texas, S.B. Center, TX (299) Develops building structures & cooling systs.	D	F	119	6	1990
383.	Rochester Software Associates Rochester, NY Mfrs. digital-document- production software	A	A	16	4	1986

384.	Austin Tanner Garrett Tallahassee, FL (365) Provides computerized voice & fax svcs.	A	B	36	4	1987
385.	Envirotech Services Enid, OK Provides civil-engineering & environmental consulting svcs.	C	F	27	1	1992
386.	Alphatech Arlington, VA Provides computer consulting svcs.	C	C	71	7	1989
387.	Atlantic Search Group Cary, NC (271) Provides technical consulting for pharmaceutical & other industries	D	C	100	25	1986
388.	Custom Transportation Service Braintree, MA Provides transportation & limousine svcs.	C	E	142	18	1988
389.	Delta Group Albuquerque, NM Mfrs. cables, wire harnesses, & electromechanical assemblies	D	F	70	18	1987
390.	CD Smith Drug St. Joseph, MO Provides wholesale pharmaceutical distr. svcs.	D	F	140	50	1986
391.	Davis Cos. Marlborough, MA (183) Provides temporary-employee & mgmt. svcs.	D	D	52	8	1988
392.	Computer Aided Service Los Altos, CA Provides software & diagnostic equip. for automotive svcs.	F	F	75	50	1989
393.	Hoff & Associates Ann Arbor, MI	D	B	24	4	1991

394.	Provides product-design & engineering svcs. World Wide Technology St. Louis, MO Provides systs.-integration svcs.	D	D	92	24	1990
395.	Ex Officio Seattle, WA (169) Designs, imports, & distr. adventure-travel apparel	E	F	24	6	1986
396.	Dazel Austin, TX Mfrs. mgmt. software	F	A	96	12	1991
397.	ACS Systems & Engineering Virginia Beach, VA (109) Provides systs.-integration, installation, & engineering- design svcs.	C	D	130	2	1990
398.	Radiant Systems Raleigh, NC Mfrs. heating equip. for engines	D	F	58	6	1989
399.	Hamlin, Power & Reaves Springfield, IL Provides automotive-marketing & training svcs. & sells used cars	D	D	90	20	1989
400.	Warm Springs Machining Waynesboro, PA Mfrs. & distr. hydraulic- dump prods.	C	E	80	20	1989
401.	National Computer Resource Wichita, KS Sells new & used computer equip. & periph.	D	D	51	10	1991
402.	Logical Solution Lenexa, KS Sells computers	D	D	22	3	1991
403.	Triggiano Enterprises Phoenix, AZ	C	D	29	4	1991

	Mfrs. construction-paper prods.					
404.	NIE International Phoenix, AZ (423) Distr. computer systs. & parts	D	D	75	15	1990
405.	Solid Concepts Valencia, CA Provides rapid-prototyping & manufacturing svcs.	A	A	63	3	1991
406.	Born Information Services Group Wayzata, MN (178) Provides information- systs. consulting svcs.	C	D	426	99	1990
407.	Continuus Software Irvine, CA (191) Provides client/server change & configuration mgmt.	F	F	125	33	1987
408.	Analytical Graphics King of Prussia, PA Provides software and satellite analysis tools for aerospace industry	E	D	66	10	1989
409.	InfiNet Systems Turlock, CA Provides systs. & network-integration svcs.	D	A	18	3	1992
410.	Micro Interactive New York, NY Develops interactive multimedia software	B	B	40	9	1990
411.	Jaffe Associates Washington, DC Provides marketing, mgmt., & communication svcs.	F	C	25	6	1978
412.	DPR Construction Redwood City, CA (370) Provides general-construction	D	D	925	125	1990

413.	contracting svcs. Triad Data New York, NY Provides technology consulting svcs.	B	D	450	65	1985
414.	Infotech Enterprises Alexandria, VA Provides software-development & geographic-information- systs. svcs.	C	C	24	4	1990
415.	Landmark Financial Services Dallas, TX Provides residential- mortgage svcs.	D	A	80	10	1988
416.	Sun Time Enterprises Clearwater, FL Mfrs. licensed sports watches	B	A	50	5	1991
417.	Key Environmental Services Cedarburg, WI Provides environmental & geotechnical engineering & consulting svcs.	A	F	30	5	1992
418.	Madison Research Huntsville, AL Provides engineering & information-technology svcs.	D	E	167	22	1986
419.	Concrete Technology Largo, FL Mfrs. decorative concrete coatings	B	F	14	4	1992
420.	Monitronics International Dallas, TX Provides residential & commercial security svcs.	F	F	75	21	1988
421.	M Squared San Francisco, CA Provides interim- mgmt. svcs.	D	F	25	3	1987
422.	Midwest Datacomm Downers Grove, IL	D	F	24	8	1990

	Provides svcs. for local area networks & voice & data cabling					
423.	Mass. Bay Brewing Boston, MA (476) Brews & distr. malt beverages	D	E	62	12	1986
424.	Rich, Florin/Solutions Marlborough, MA Provides compensation consulting svcs.	A	A	12	3	1992
425.	OC Arlington, VA Provides engineering & training svcs.	D	C	254	90	1987
426.	Paradysz Matera & Co. New York, NY Provides direct-marketing svcs.	A	D	85	18	1990
427.	Sharpe Capital New York, NY Provides securities svcs.	D	F	85	11	1986
428.	Stevens Professional Staffing New York, NY Provides temporary-staffing svcs.	E	E	3	1	1992
429.	Interlink Communication Systems Clearwater, FL (242) Provides computer-network-integration svcs.	C	C	28	5	1990
430.	Micro Modeling Associates New York, NY Provides computer consulting svcs.	A	A	134	22	1989
431.	Cost Management Systems Vienna, VA (254) Provides information-systs. & consulting svcs.	D	D	150	29	1986
432.	Granite Properties Dallas, TX Provides commercial real estate investment svcs.	A	A	70	2	1991

433.	New Media Cleveland, OH (222) Provides information- technology systs.	B	A	129	24	1988
434.	Key Temporaries Atlanta, GA (366) Provides temporary- employment svcs.	C	B	30	9	1988
435.	Ringmasters Ogden, UT (431) Designs & distr. corporate, public-safety, & religious prods.	A	D	22	2	1987
436.	JJ Grace Van Nuys, CA Provides newspaper-advertising outsourcing & graphic-design svcs.	E	E	36	5	1987
437.	Triad Technology Group Portland, OR Provides staffing & recruiting svcs. for information- technology firms	D	F	29	2	1992
438.	ChemPro Spartanburg, SC (61) Mfrs. & markets consumer & industrial cleaners	B	F	27	7	1990
439.	Logistics Management Memphis, TN Repairs & refurbishes electronic equip.	D	F	412	47	1989
440.	Pinnacle Group Athens, AL (236) Designs, develops, & implements software & information solutions	B	C	228	15	1989
441.	Indoff St. Louis, MO Distr. & supplies storage equip. & furniture	D	F	200	30	1971
442.	Emerald Resources North Syracuse, NY Provides medical distr. svcs. for nursing homes & hospitals	D	D	12	6	1990
443.	Construction Coordinators Needham, MA Designs & constructs commercial projects	D	D	25	6	1991
444.	United States Information	A	B	101	15	1988

445.	DeBari Associates New York, NY Provides telecom. svcs.	C	A	12	1	1987
446.	Systems Integration Solutions San Francisco, CA Provides consulting, information-technology, & contracting svcs.	C	D	300	40	1990
447.	BGB South San Francisco, CA Mfrs. trade-show exhibits	A	A	34	3	1991
448.	NetPro Computing Scottsdale, AZ (213) Develops, publishes, & markets network-utility software	D	F	52	9	1991
449.	RapidPak Appleton, WI Mfrs. food-packaging equip.	C	F	15	14	1989
450.	Plitt Co. Chicago, IL Distr. wholesale seafood prods.	D	D	46	7	1916
451.	CIBT McLean, VA (219) Provides travel & visa svcs.	D	F	88	27	1989
452.	Dataworks Denver, CO (302) Publishes mgmt. logbooks for hospitality industry	A	C	74	16	1989
453.	Bertech Industries Torrance, CA (342) Distr. electronic tools & supplies	D	C	18	1	1983
454.	Maslow Media Group Arlington, VA Provides staffing svcs. for video & film industry	A	A	7	3	1989
455.	Eclipse Consulting Noblesville, IN Provides computer consulting svcs.	D	A	39	6	1991
456.	Russ Thomas Construction Cincinnati, OH Provides commercial-construction svcs.	C	D	215	20	1989
457.	GeoAccess Overland Park, KS (356) Provides software & consulting svcs. for managed-health-care industry	A	A	82	11	1990
458.	Noble-Met Salem, VA (418)	A	A	55	9	1989

459.	Mfrs. metal microtubing Bell Oaks Atlanta, GA Offers executive-search svcs.	C	F	34	4	1970
460.	CAP Engineering Consultants Coral Gables, FL (162) Provides engineering consulting svcs.	B	A	90	14	1989
461.	Maxim Computer Systems Fremont, CA Sells & svcs. high-performance enterprise LANs	D	D	25	14	1988
462.	Environmental & Occupational Risk Mgmt. San Jose, CA (215) Provides environmental-safety consulting & engineering svcs.	D	A	69	20	1990
463.	Liberty Bidco Investment Farmington Hills, MI Invests in small businesses through debt or equity position	A	F	5	3	1988
464.	Triumph Technologies Burlington, MA (249) Provides computer-network- integration & -engineering svcs.	D	C	32	7	1988
465.	Staffing Consultants Chicago, IL (296) Provides temporary-staffing svcs.	D	F	42	21	1989
466.	Architectural Specialties Trading Pensacola, FL Mfrs. commercial architectural woodwork	A	F	61	23	1990
467.	Recore Arlington, TX Supplies wholesale automotive parts	A	A	28	3	1991
468.	Embedded Support Tools Canton, MA Develops & mfrs. embedded systs. -development tools	A	D	40	8	1989
469.	Metro Technologies Manassas, VA Sells computer & data- communications equip.	C	A	68	3	1990
470.	Party Land Plymouth Meeting, PA Franchises retail party- supply stores	D	F	130	6	1986

471.	Retail Systems International Chula Vista, CA Mfrs. bar-code equip.	D	D	19	5	1991
472.	Enterprise Networking Systems Redwood City, CA Provides systs.-integration svcs.	D	D	66	19	1989
473.	ShapsGroup Los Altos, CA (482) Provides accounts-payable- recovery svcs.	D	E	7	1	1991
474.	Policy Studies Denver, CO Provides mgmt. consulting & information-technology svcs.	D	E	414	49	1984
475.	Aspen Temporary Services Takoma Park, MD (438) Provides temporary-help svcs.	D	D	280	75	1988
476.	ABCOW Services San Diego, CA Provides temporary- employment svcs.	D	F	12	3	1989
477.	Babbidge Facilities Construction New Haven, CT Offers general-contracting & mgmt. svcs.	D	D	6	2	1992
478.	Entact Irving, TX Provides environmental consulting & remediation svcs.	B	F	85	15	1991
479.	Optical Laser Huntington Beach, CA (205) Distr. optical technology	E	F	35	6	1988
480.	Ascher Group Roseland, NJ Provides staffing svcs.	D	F	9	5	1981
481.	Freeman Associates Wellesley, MA Provides media-marketing svcs. for print, on-line, & trade-show planning	A	A	30	4	1986
482.	Novtek San Jose, CA (445) Mfrs. test equip. for flash- memory prods.	A	D	32	10	1986
483.	Power Devices Laguna Hills, CA Sells thermal-mgmt. materials	D	F	34	8	1984
484.	Dove Data Products Florence, SC Mfrs. & recycles computer-	E	F	37	10	1991

	printer supplies					
485.	ABC Technologies Beaverton, OR Develops software & svcs. for activity-based mgmt.	C	F	84	20	1989
486.	Magellan's International Travel Santa Barbara, CA (349) Publishes mail-order catalogs	D	F	45	15	1989
487.	Planned Systems International Columbia, MD Provides systs.-integration svcs.	D	D	165	8	1988
488.	Computer Networks Pleasanton, CA Provides systs.-integration svcs.	D	D	13	1	1991
489.	Lancast Nashua, NH Develops & mfrs. data- communications equip.	D	C	64	12	1981
490.	Bolder Heuristics Boulder, CO Develops high-tech software & provides consulting svcs.	C	C	46	9	1988
491.	Valcom Middleton, WI Provides PC-technology solutions	D	F	97	31	1984
492.	TeleMark Portland, OR (292) Provides telemarketing svcs.	E	C	1,400	422	1987
493.	Working Assets Funding Service San Francisco, CA (42) Provides donation-linked long- distance telephone svcs.	C	F	87	32	1985
494.	American Incorporators/Registered Agents Wilmington, DE Provides incorporating svcs.	B	A	6	3	1979
495.	Harrington Group Orlando, FL Develops & sells software for quality-assurance industry	E	F	20	3	1991
496.	System One Technical Tampa, FL Provides solutions for information -technology & telecom. companies	E	D	189	25	1987
497.	HCI Technologies Reston, VA (259) Provides telecom. & information- systs. consulting svcs.	E	B	115	21	1985
498.	Original American Scones Oak Park, IL (452) Mfrs. fresh & frozen baked goods	E	C	175	41	1986

499.	Empire Graphics New York, NY Provides commercial-printing svcs.	A	A	51	2	1991
500.	Telogy Networks Germantown, MD Mfrs. software-based telecom. systs. & prods.	F	F	128	18	1989

* A. 16% or more; B. 11% to 15%; C. 6% to 10%; D. 1% to 5%; E. Breakeven; F. Loss

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12 of 14 DOCUMENTS

InternetWeek

March 10, 1997

E-mail Linked To Doc Agents

SECTION: Network Applications -- Messaging, Groupware, Databases, CTI, Development & Web, Pg. 23, In Brief

LENGTH: 63 words

Open Text Corp., Waterloo, Ontario, has unveiled "change agents" for its Livelink document management suite that monitors objects in the suite and reports updates to users via E-mail. Hyperlinks embedded in the E-mail let users go directly to the documents in question. The system supports various E-mail applications. (www.opentext.com)

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13 of 14 DOCUMENTS

InternetWeek

February 21, 2000

IM Apps Branch Out

BYLINE: David Drucker

SECTION: E-Business Applications, Pg. 15, In Brief

LENGTH: 489 words

Instant messaging has become a mainstay of online customer service, letting consumers escalate Web site inquiries into real-time communication with support agents. Now, a new set of services promises to let companies expand IM's benefits beyond inbound support.

FaceTime Communications has introduced three services designed to let companies actively reach out to customers through IM as well as use IM to improve business-to-business communications.

The services work in conjunction with AOL Instant Messenger. FaceTime provides the routing, queuing, message management and visual tools that help agents coordinate IM with other forms of communication.

InstantAlert lets companies use IM as a first option for sending notifications to customers and partners. For example, a service representative who needs to inform a customer of updated information would know if that customer is online and could contact her more directly than by e-mail and less expensively than with a phone call.

InstantGroups combines multiple people under a single buddy name, with messages routed to available individuals within the group or team. The service could minimize call center activity by letting users find appropriate people more directly and, in business-to-business settings, could let companies quickly get in touch with individuals at partners that don't have call centers at all.

InstantEmail lets companies embed IM links into an e-mail; recipients can click such a link to get in direct contact with live agents. Users without AOL IM would be connected through a Java applet. InstantEmail is designed primarily for consumer e-mail marketing.

Analysts said the services will add flexibility to many customer service operations, helping them better choose the most appropriate form of communication. Business-to-business use will catch on slowly but will carry significant benefits, such as adding real-time conflict resolution to transactions and order fulfillment, said Forrester Research analyst Navi Radjou.

"I think they're opening the door to the kind of apps that can facilitate business-to-business collaboration," Radjou said.

The services are in beta and scheduled to be generally available by the end of March. Pricing has not been set. Companies will have the option of housing the services on their own servers, with FaceTime providing remote management.

SERVICE IN AN INSTANT

FaceTime aims to turn instant messaging into a versatile business communication tool.

-InstantAlert lets agents use IM as a first option, informing them if a customer they are trying to reach is online.

-InstantGroups combines individuals into single-username groups, with messages routed to people available within those groups.

-InstantEmail embeds IM link into outbound e-mail, letting recipients connect to live agents.

Source: InternetWeek

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[Return to List](#)

14 of 14 DOCUMENTS

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E-mail Update: Trends and tips for beginning mailers

BYLINE: MICHELLE FEIT

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As we rapidly gain experience and test results from Internet direct mail, we are learning more every day about what works in this new medium. Here are some techniques that seem to be successful in increasing clickthroughs and conversions, and the trends and results we are seeing.

With more than 100 million opt-in e-mail addresses currently on the market, you now have the ability to test and roll out. Demographic profiling is becoming more available, allowing you to pinpoint your audience and send your message to those who are more likely to respond. Buyer data - historically slower to market - is also starting to surface.

Remember that the Internet and e-lists are worldwide. Therefore, when renting lists, be sure to specify the geographic area - region, state or country - you want to target. Don't send e-mails to Europe or Asia if you can't handle leads or orders from overseas.

How well is Internet direct mail working? E-mail ads are dramatically outperforming banner ads. They also outpull conventional paper direct mail at a much lower cost per thousand.

E-mail clickthrough response is typically 10% for consumers and 5% for business-to-business e-mail. Banner ads, by comparison, average only 0.5% clickthrough response.

Conversion rates for Internet direct mail are similar to regular direct mail. So if you are used to seeing a 10% conversion rate in your regular direct mail, expect a similar conversion for online respondents.

Usage of e-mail enhanced with HTML graphics is on the rise. In some, the HTML is used simply to display fonts and put headlines and subheads in color. In others, it adds images to the text. HTML e-messages take longer to send and require more bandwidth to transmit, but they don't take any longer for the recipient to view. Depending on the list, there can be no extra cost for sending HTML, or it can run an additional \$10 to \$50 per thousand names.

HTML e-mail can outpull plain text messages by as much as 20%, both in clickthrough and conversion rates. Perhaps those who receive HTML and click

are more Internet-savvy and more willing to purchase online. According to an article in American Demographics (June 2000, p. 44), an eMarketer survey found that 80% of e-mail users owned computers capable of managing HTML e-mail.

In these very exciting times, where a brand new medium can bring in customers more effectively and at a lower cost, marketers must put on their thinking caps and find ways to benefit from e-mail marketing. There is not one quick and easy answer to this challenge. Why? No two companies are the same. There are, however, many tricks of the trade that can lift response rates and increase profitability.

Timing's Everything

The buzz recently on Internet marketing has been that Tuesday through Thursday are the best days to send out e-mail messages. Today 80% of all commercial e-mail is transmitted between Tuesday and Thursday. If this continues, maybe we can reduce our work week down to 3 days! This might appeal to some but it's not very realistic. The truth is Monday, Friday and even the weekend can produce response rates that equal or exceed Tuesday through Thursday. It really depends on the product you are selling and the time of year you are doing the promotion.

Let your customers tell you which is the most responsive day. Take a look at the activity on your Web site. It's your customers who will tell you when they like to shop for your product. The highest volume days and time of day are the best time to transmit your message.

Despite the Internet being an electronic medium, Internet direct mail seems to have a longer shelf life than first believed. Many people are saying responses come in the first three days, but I am seeing some responses come in as long as 6 to 8 weeks after transmission.

Hot responders are those who clickthrough within 24 hours. Hot responders are the most likely to send your message to other people - 10 on average. These hot prospects are interested in the next and best thing. Their behavior is difficult to predict, and they frequently bounce from site to site. They prefer short e-mails - 60 words or less.

Warm responders clickthrough within three days. They will often read several paragraphs of copy, and they are solid prospects.

Cold responders take more than three days to respond. They are not as e-mail-responsive as hot or warm responders, and are a tough sell. You can get through to them in a number of ways, such as with free trial offers or a strong online community on your Web site.

You can increase the pass-along of e-mail by the recipient to his or her associates by suggesting it in the copy. For instance: "Why not pass this e-mail along to your friends so they too can take advantage of this great money-saving deal?"

Actively encouraging e-mail pass-along is known as viral marketing, and it is very effective at increasing overall response rates. Think creatively. For instance, maybe there's a neat image, puzzle, tool, Web link or factoid you can put into your e-mail that recipients will want to pass along to their friends.

Does Size Matter?

The tradition in Internet direct mail is to use short copy, which poses a problem for marketers whose paper direct mail typically depends on long copy to make the sale. Increasingly, we find that longer e-mail copy can work.

The key is to incorporate the benefit, offer and response link into the first paragraph or two of your long-copy message. Those people who are more comfortable on the Internet or are familiar with the product might want to click on the link at the top without reading the rest of the message. Others who need to be sold before they click and purchase can delve further into the copy.

Subject lines should be as short as possible to get the point across quickly. Standard e-mail readers can accommodate a subject line of up to 60 characters, but many don't display them all. So long subject lines can get cut off.

Make your subject line the online equivalent of a short outer envelope teaser, with a message that lures the recipient into reading further or wanting to get more information. Arouse curiosity. "Advice from Bill Gates" is better than "Bill Gates on innovation."

If you have a strong offer, put it right in the subject line and the lead of your e-mail; don't bury it halfway down in your message. Price-off discounts, premiums, sweepstakes, drawings, free shipping and handling, cash prizes and bonus points all have proven to be effective offers for Internet direct marketing.

Don't force recipients of direct marketing materials to switch media to reply. For instance, the best response method for e-mail is a link embedded in the message that sends the recipient to a Web-based response form. The prospect can fill out the form and click to submit it for more information or to place an order. Not permitting online replies will significantly lower your overall response rate.

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